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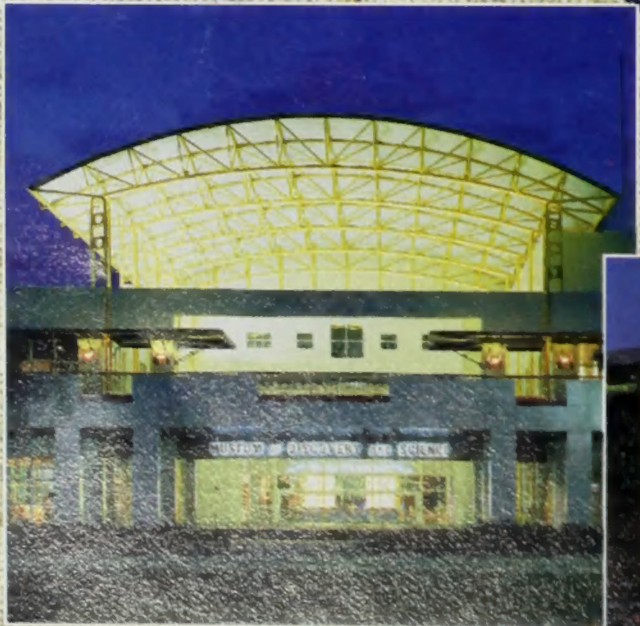

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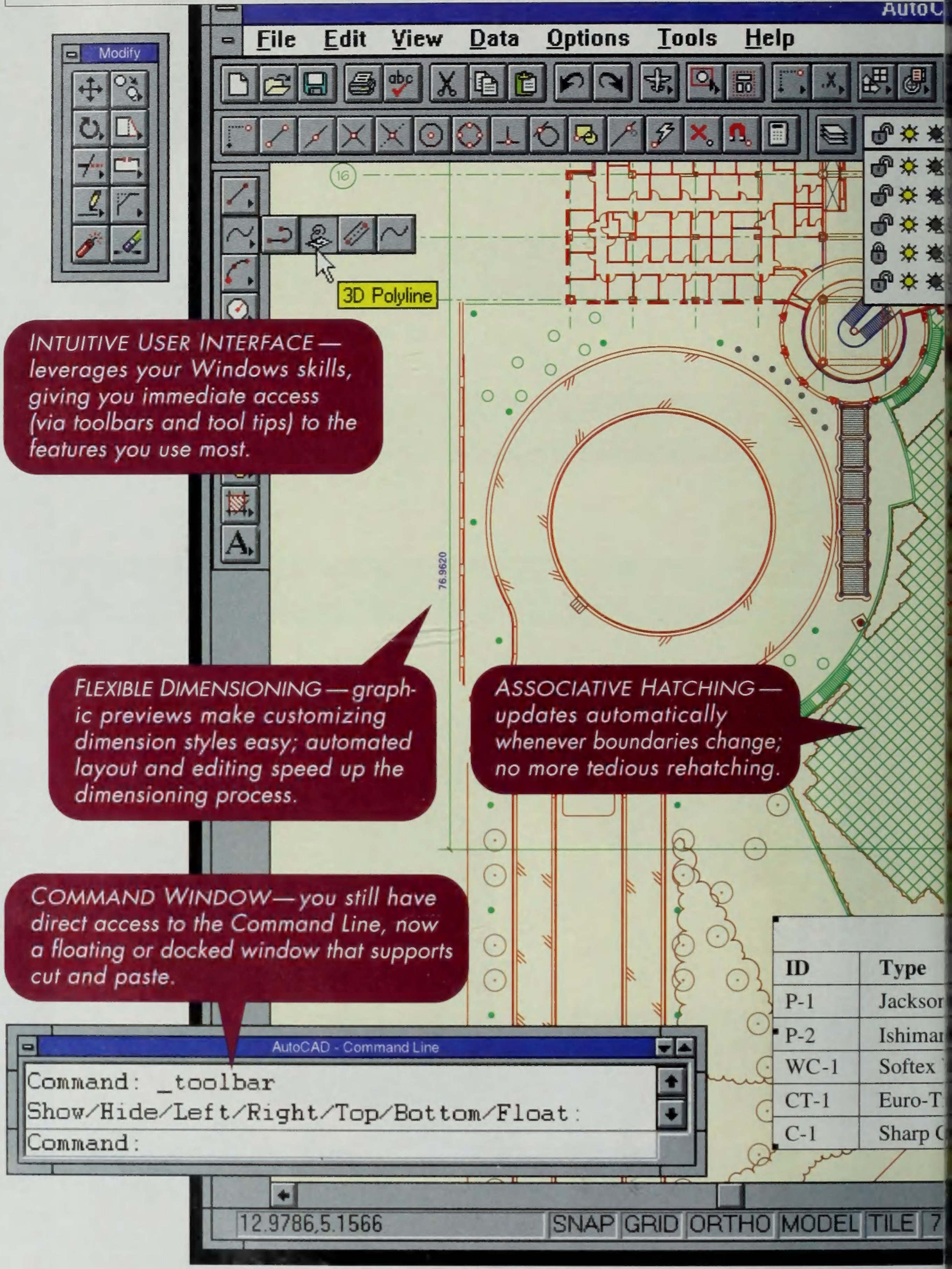

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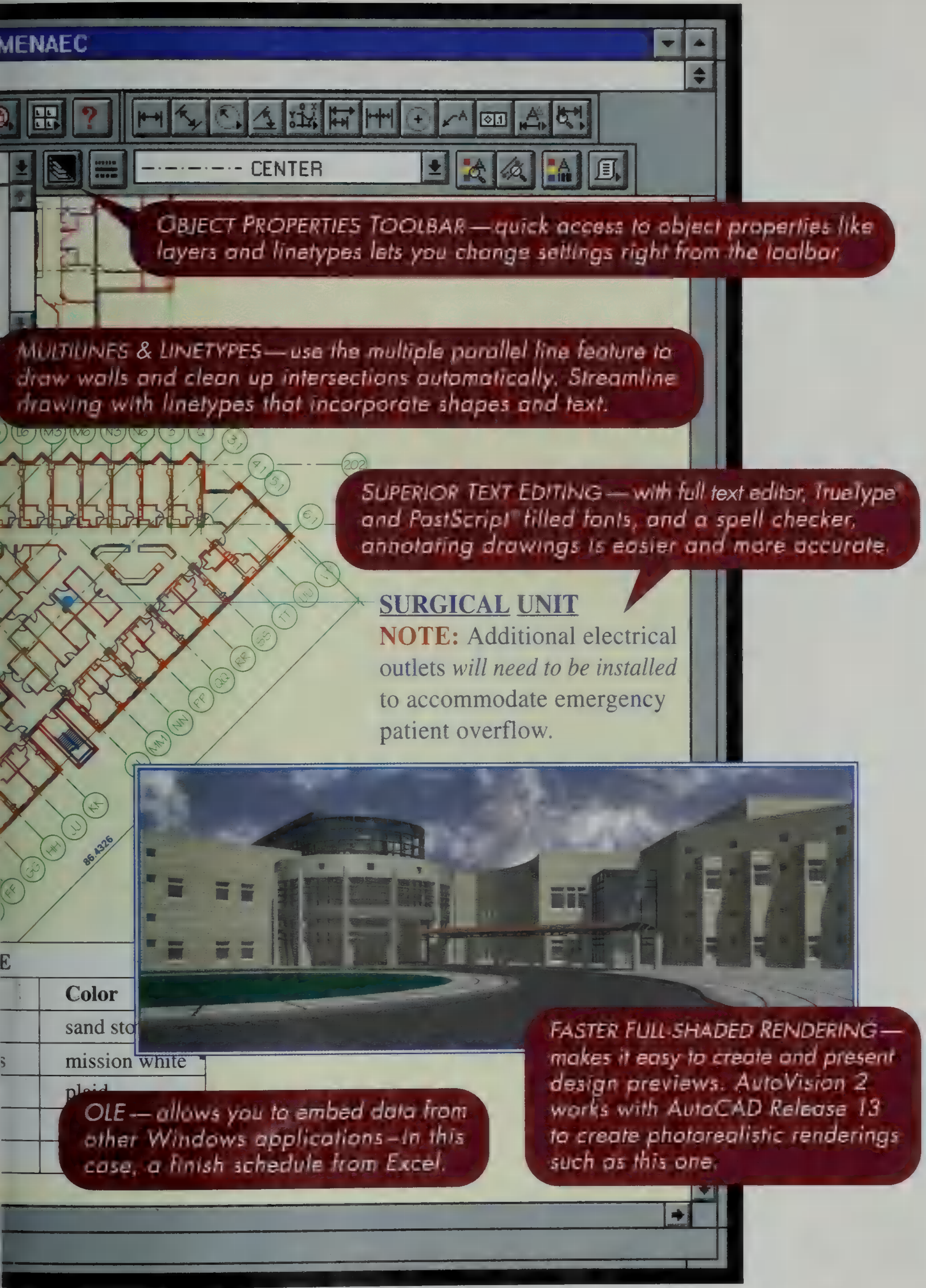

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Letters

On The Carpet

I have been reasonably impressed with RECORD editorials in recent issues, but, in March 1995 [RECORD—Architectural Carpetbaggers?, page 9] all I can say is:

"Why?, The point is....."
"Why not?, What is the point?"
Irving Katz, PE
Manhasset, NY

I appreciate your editorial in the March issue. ["Architectural Carpetbaggers?"] It touches a nerve and addresses it in a more or less even-handed way.

There is, however, one aspect you overlooked: the role publications such as RECORD play in creating the reputations of the "signature" designers. It seems that the more outrageous the creations some of these designers produce, the more we see of them in the architectural, and more frequently of late, the general press. Once these stars have been "discovered," almost any excrescence they can produce is bound to be the darling of the month in the press.

Even the designers of published work which has clear architectural merit garner perhaps unwarranted weight to their reputations by the sheer frequency of their names appearing in the media. Anything they do seems to get published. While it may be good, that doesn't mean it is any better than or even as good as local architects could do, but in this age, those with the best public relations and reputations get the attention and the plums.

The architectural press has a major role in building those reputations. They are sometimes not deserved, and sometimes it is difficult [illegible] the merit of less well-known locals.

To compound all this, the bureaucratic mindset prevails in the private as well as public sectors. This means that there is a great pressure to make the "safe" choice when selecting an architect. Selections can always be defended on the grounds of "national" reputation and few will deign to disagree.

Even more irksome, though, is the propensity of the press to latch onto the weird and wacky and make heroes out of their creators. We have come to expect you and your brothers to promote this kind of kinkiness whenever given the opportunity. An example from the March issue—when I first saw the bottom photo on page 17 I could have sworn I was looking at the latest Frank Gehry creation, not damage from the Kobe earthquake. Your promotion of the perception by the public that this kind of thing is the "best" architecture is damaging to the profession and to the value the public deserves from the fruit of our labors.
Frank Orr
Orr/Houk & Associates Inc.
Nashville, Tenn.

First Source

I noticed that your article entitled "Focus On: Turning Ordinary into Extraordinary" [February 1995]—describing the architectural style of Moore Street Market in Brooklyn—mentioned the designer of the project but not its initiator.

The New York City Economic Development Corporation (EDC)—the Giuliani administration's primary vehicle for economic development services—is the organization that promulgated and spurred on the

Continued on page 75

Calendar

May 23-25
Lightfair International, Navy Pier, Chicago. Call 404/220-2217 for conference information.

June 5-8
A/E/C Systems will hold its 1995 conference and exhibit at the Georgia World Conference Center, Atlanta. Call Sharon Price at 800/451-1196; 203/665-0153, or fax her at 203/666-4782.

June 23-25
Construction Specifications Institute (CSI) annual convention and trade show, Minneapolis. Call 800/689-2900 for information.

Through June 24
"Temple of Liberty: Building the Capitol for a New Nation" exhibition in the Madison Gallery of the Library of Congress, James Madison Building, traces the effort to create a building reflecting the new nation's ideals. Bicentennial event features newly commissioned models of the Capitol and nearly 200 original documents. Call 202/707-2905 for more information.

July 1-14
- "The Art of Architecture: Works by Laureates of the Pritzker Architecture Prize," Columbus Gallery, Indianapolis Museum of Art. Call 317/923-1331 for details.

Competitions
- Design for Transportation Awards Program entries due May 15 in the following categories: architecture (passenger and freight terminals, stations, ports, other structures); historic preservation; urban design and planning; special interest (ADA provisions; mixed-use development). Call Thomas Grooms at 202/682-5437 for entry forms and further information.
- Extension and Replanning of the Prado National Museum (Madrid). Registration due June 12 for a $215 fee. Call 34-1/435-77-23 or fax 34-1/575-38-39 for more details.

ARCHITECTURAL RECORD

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A portfolio of work by Swiss architects Jacques Herzog and Pierre de Meuron (page 84).

Next month

Building Types Study 727 covers community facilities, and comprises a group of branch libraries, a children's center, a gymnasium and teen center, an aquarium, and a village hall. Also included is a feature on a renewed 100-year old town in Northern California.

Also in June

In The Profession

- Design and detailing of curtain walls.
- Specifications revisited.

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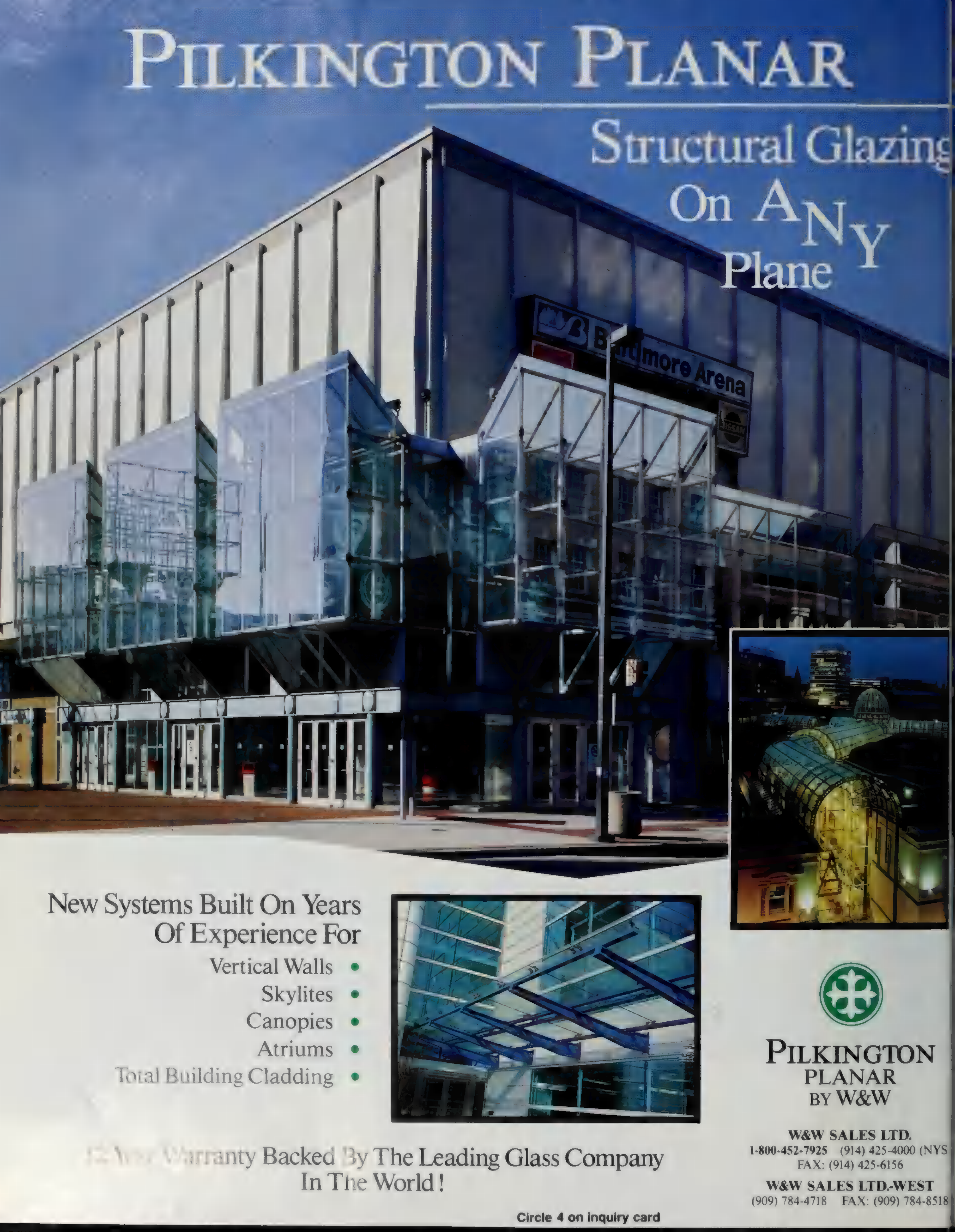

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Oklahoma Outrage

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The horrifying phrase "hundreds of rescue workers are searching through the rubble for survivors..." has outgrown the broadcaster's cliché to become a metaphor of our times. At this writing one day after the car explosion at the Murrah Federal Office Building in Oklahoma City—with dozens dead and scores missing and injured, including children in a second-story daycare center, and with some bystanders blocks away having their eardrums shattered by the blast and others temporarily blinded by the impact on the optic nerve—one needs to come to grips with this latest in a series of events that is threatening to undermine the fabric of civilized modern life.

For if this sort of disaster can happen in Oklahoma City, a neighborly community of 454,000 people in the nation's heartland, no town of any size is safe from the skewed initiatives of a few. The tragedy must force a rethinking of future roles by every professional and business person in the country, from politicians and crime prevention officials to explosives manufacturers, doctors, men and women of the cloth and, not least, the community of design and construction professionals.

That's because the venues of these criminal acts are buildings. The office building in Oklahoma City is only the latest in a long line of building explosions that includes New York's World Trade Center, the Marine Barracks in Beirut, and countless structures in Bosnia, Ireland, Egypt, Algeria, Israel, Lebanon and elsewhere. It is proof, if proof were needed, that society, including now so-called developed Western society, faces a choice among two options: one option is to make into a fortress every building where enough people congregate to attract the terrorist, using berms or bollards to keep bomb-laden cars at a distance, concrete windowless walls, battalions of guards, a mega-network of electronic surveillance systems, and building codes that will protect occupants against the seismic-like aftereffects of attacks by explosive shockwaves. The impact of this on architecture is not hard to imagine. You need only look at the design of foreign embassies in bomb-prone nations such as several in the Middle East and South America to foresee architecture and urban design in countries which to date have always felt free of bomb attacks. Yet already in the U.S., the level of crimes committed within courts of justice is rising at a rate that may make this building type the bellwether of a new style—terrorism as a determinant of architectural form (see the feature on courthouses on pages 104-111).

The other scenario is fatalistic. It takes the view that to avoid being killed or hurt by a parked carbomb is virtually impossible. Life goes on; there are risks in crossing the road, taking a shower, or playing basketball. This scenario urges calm, and faith that the authorities will capture the criminals; eliminate the root causes of the attacks which are not by cranks but by idealists with a cause but with peculiar morals; develop a reasonable policy of protecting vulnerable (e.g. densely occupied or symbolic buildings); and enforce code-driven construction and safety standards that will minimize casualties.

These two options should trigger an important debate among architects, where their special viewpoint as artists, technologists, and champions of urban values carry special weight. *Stephen A. Kliment*

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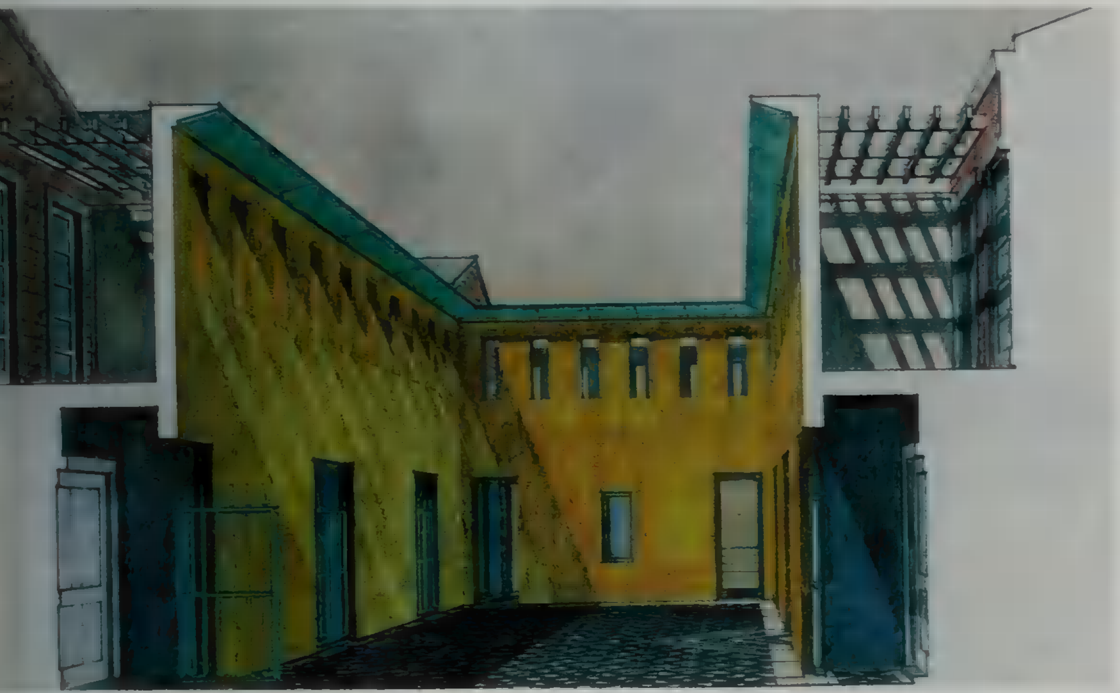
Machado and Silvetti Add Caribbean Accent o Nostalgic Voice of Seaside

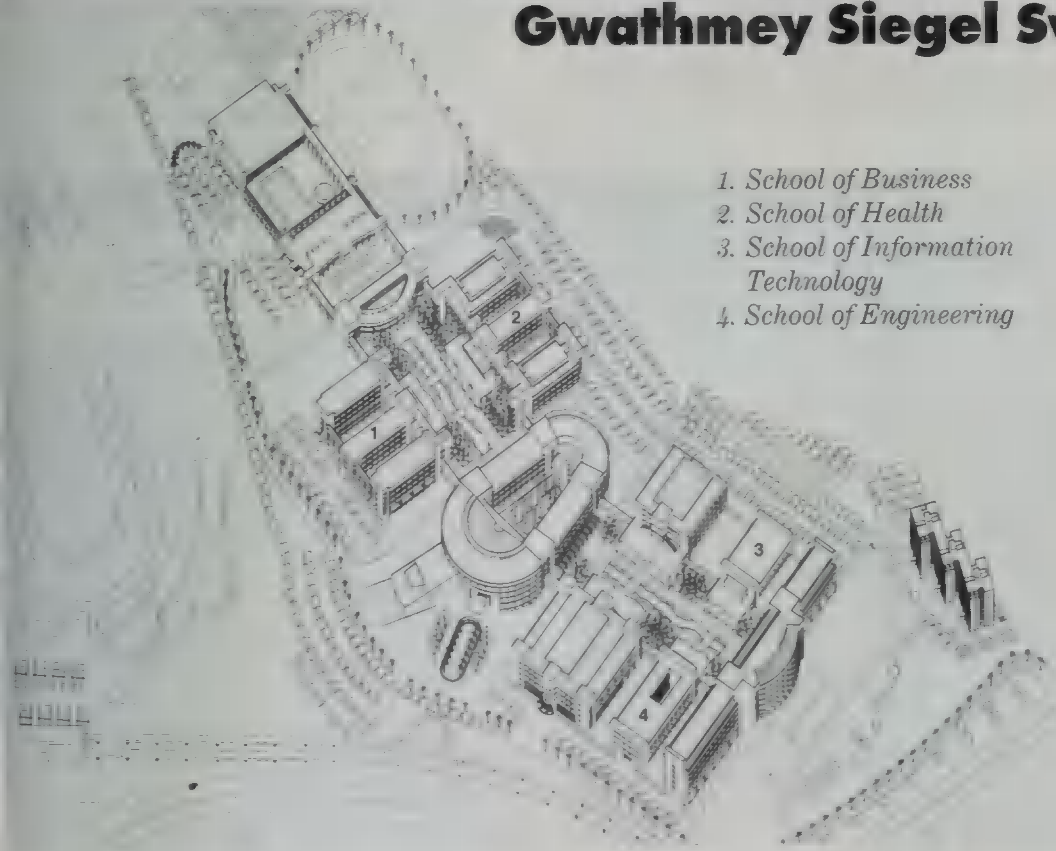


Rodolfo Machado and Jorge Silvetti's new building for Seaside—Florida's utopian community begun during the '80s—is a Caribbean-inspired work set in a nostalgic village. Seven apartments will sit above commercial and office spaces in the four-story building. Machado and Silvetti have inserted a colonnade facing the street—required by town regulations—continuing the existing colonnade that wraps around the town green. On the top floor, screen-like shutters will enclose the apartments' balconies below subtle roof overhangs. But the key moment is the appearance of an internal public courtyard when visitors reach the third floor (left). It gives poetic focus to the residences above: from here one can either enter the apartments or stroll around a quiet garden that overlooks the ocean. ■

Nicolai Ouroussof

ingapore

Gwathmey Siegel Swings East—and Wins



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4. *School of Engineering*

Charles Gwathmey and Robert Siegel's winning design for the Nanyang Polytechnique is a 2.3-million-sq-ft linear city that can keep on growing. Located in north-central Singapore, the university's campus is organized as two wings of a 500,000-sq-ft, egg-shaped, multi-purpose building that is the complex's main entrance. The central building—with its enclosed, terraced garden—houses the library, administrative offices, and a theater. On each flank, sleek, vaulted buildings house four distinct schools (engineering, business, health and information technology), all arranged along a strip of courtyards and gardens. Pedestrian circulation and cars are carefully segregated, and future plans allow for the school to grow by another 25 percent towards the pedestrian walks and car parks that encircle it. Completion is scheduled for September 1998. ■

Preservation

Landmark or Eyesore?

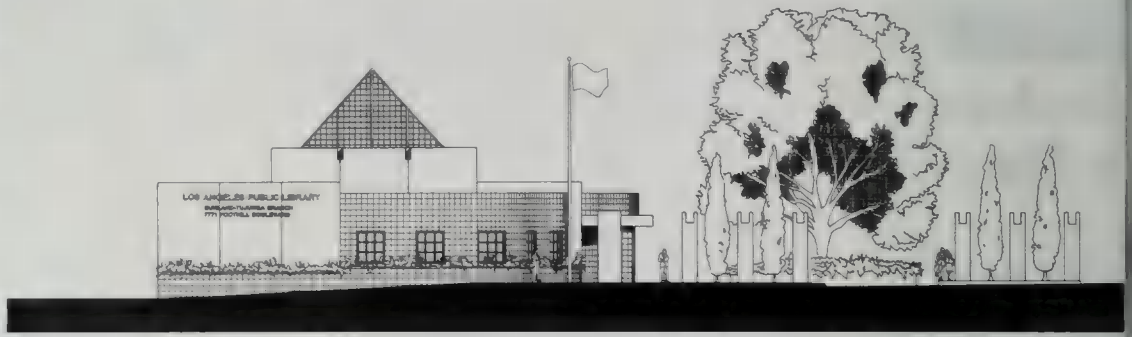
Courtesy of Historic American Building Survey

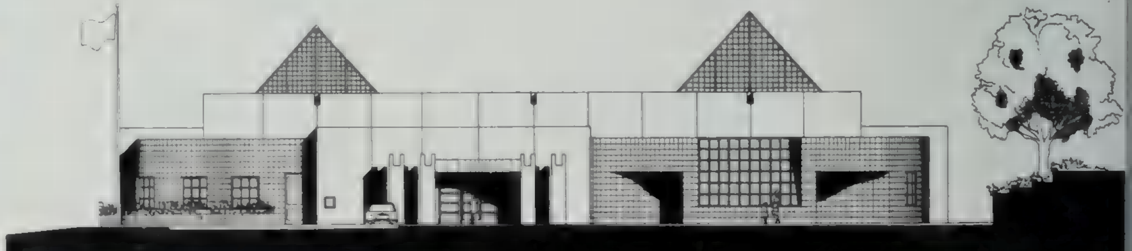
If the expansive interpretation of preservation promulgated at "Preserving the Recent Past," a conference held March 30 to April 1 in Chicago, takes hold, the relationship between architects and preservationists could take on quite a different cast. The meeting, sponsored primarily by the National Park Service, generated a palpable excitement—a sense that the artifacts of the 20th century (including "historic" technologies like asphalt shingles) had at last emerged into the light of recognition. Amazingly, most presentations lacked any critical view about what should be preserved. Already listed as national landmarks are: Dealey Plaza (where John F. Kennedy was shot), Graceland, and the crumbling Philadelphia studio where *American Bandstand* was first teletaped.

Fast-food restaurants and roadside ephemera, such as the Columbia, S. C., Greyhound terminal (above), were considered of similar merit to the conventional "great monuments" and the contributions of minorities, women, and poorer communities that have only recently received academic attention. It all seems naive in the face of attacks in Congress and elsewhere on landmark and other zoning regulations seen as trampling on property rights. The proceedings (which include a great deal of useful technical information) have been published ($10; *Historic Preservation Education Foundation*, P.O. Box 77160, Washington, [illegible]

California

Outside New Library, a Tree of Knowledge Grows





An old oak tree marks the entrance of Widom Wein Cohen's Sunland/Tujunga branch library on the outskirts of Los Angeles. The original 1950s library was torn down because it was inefficient and encroached on the historical tree. In the new design, the tree is the center of an outdoor public "gathering place" that is now the focus of the site. A path of free-flowing, natural-stone paving encircles the old oak and leads into the main building lobby. The building's facade is a natural curve that faces the garden to highlight the bucolic setting. Inside, the building becomes more rigid: two large pyramid-shaped skylights rise above the adult and children's reading rooms, and administrative offices are pushed to the back. A bookstore, multi-purpose room, and bathrooms are located around the lobby, and function independently after hour as part of the garden space. The 10,500 sq-ft building was designed as a melding of man-made and natural worlds. It is part of a larger civic center that includes a fire statio and town-council headquarters. and borders a recreation park. The $1.8-million project will be completed in 1996. ■

Competition

Discovering the Gold in Glass Brings Award to Frederick M. Winkler

Frederick M. Winkler Architect has designe a floating chapel that extends Pittsburgh's downtown grid to the water's edge on the sit of a former steel mill. In the design, a "Golden Cathedral" rests nearby on the shore. Both structures are designed as a collage of triangular glass forms—their golden hue is meant to reflect the light bound ing off the river. The image is a reference to Pittsburgh's legacy: the city was once nicknamed "The Golden Triangle." The Cathedr and Chapel won the Libbey Owens Ford Glass international design competition. ■

riefs

95 Pritzker Prize laureate Tadao Ando.

wards

Tadao Ando has been named the 18th recip-
nt of the Pritzker Architecture Prize,
ining fellow Japanese architects Kenzo
ange (1987) and Fumihiko Maki (1993) as a
ureate. Ando will receive a $100,000 grant
ceremonies this month at Versailles.
William Turnbull Associates' house at
eviot Springs (below) won the American
ood Council Award. The tiny, 640-sq-ft
use is meant as a minimal shelter from the
reat outdoors. The real living space is a
500-sq-ft carpet of grass.

AC closes doors

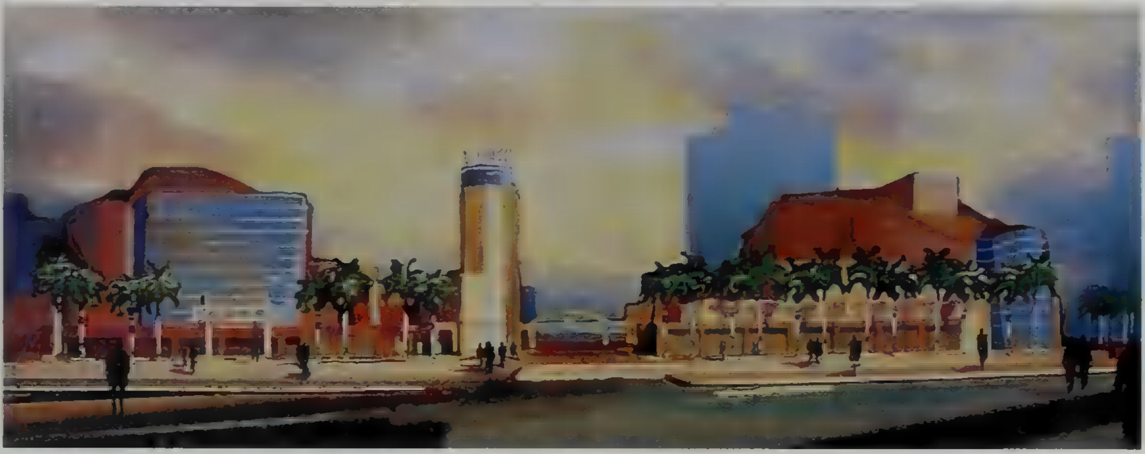
e Architects Collaborative, Cambridge,
ass., is going out of business and may file
r Chapter 11, say knowledgeable sources.

estorations

Villa Viscaya has begun a major endowment
rive to preserve the museum. Miami's di-
minutive version of San Simeon is a renais-
nce splendor overlooking Biscayne Bay.
A summer seminar at the Pratt Institute
hool of Architecture (July 10-August 18)
ll study the reconstruction of Civil War
arehouses in Red Hook, Brooklyn. Students
ll try to find new uses for the site. ■

Miami

Cesar Pelli Wins Dade PAC Project Over Arquitectonica and Rem Koolhaas



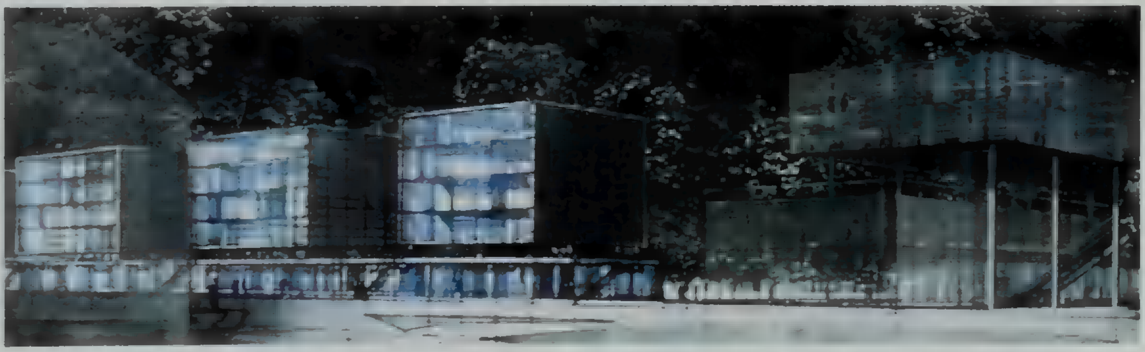
Cesar Pelli has won Miami's most important architectural competition in a decade. His $139-million design for the Dade Performing Arts Center curls around a vibrantly urban plaza—the plaza will be bisected by Biscayne Boulevard. The symphony hall and the opera house will sit on each side, the former facing north towards the boulevard, the later south towards the bay. (An octagonal 1929 Sears tower will be preserved).

In a nod to "Latin American" architecture, the plaza is lined with a classical colonnade, and the buildings are stucco. Pelli argues that the boulevard will enliven the public space.

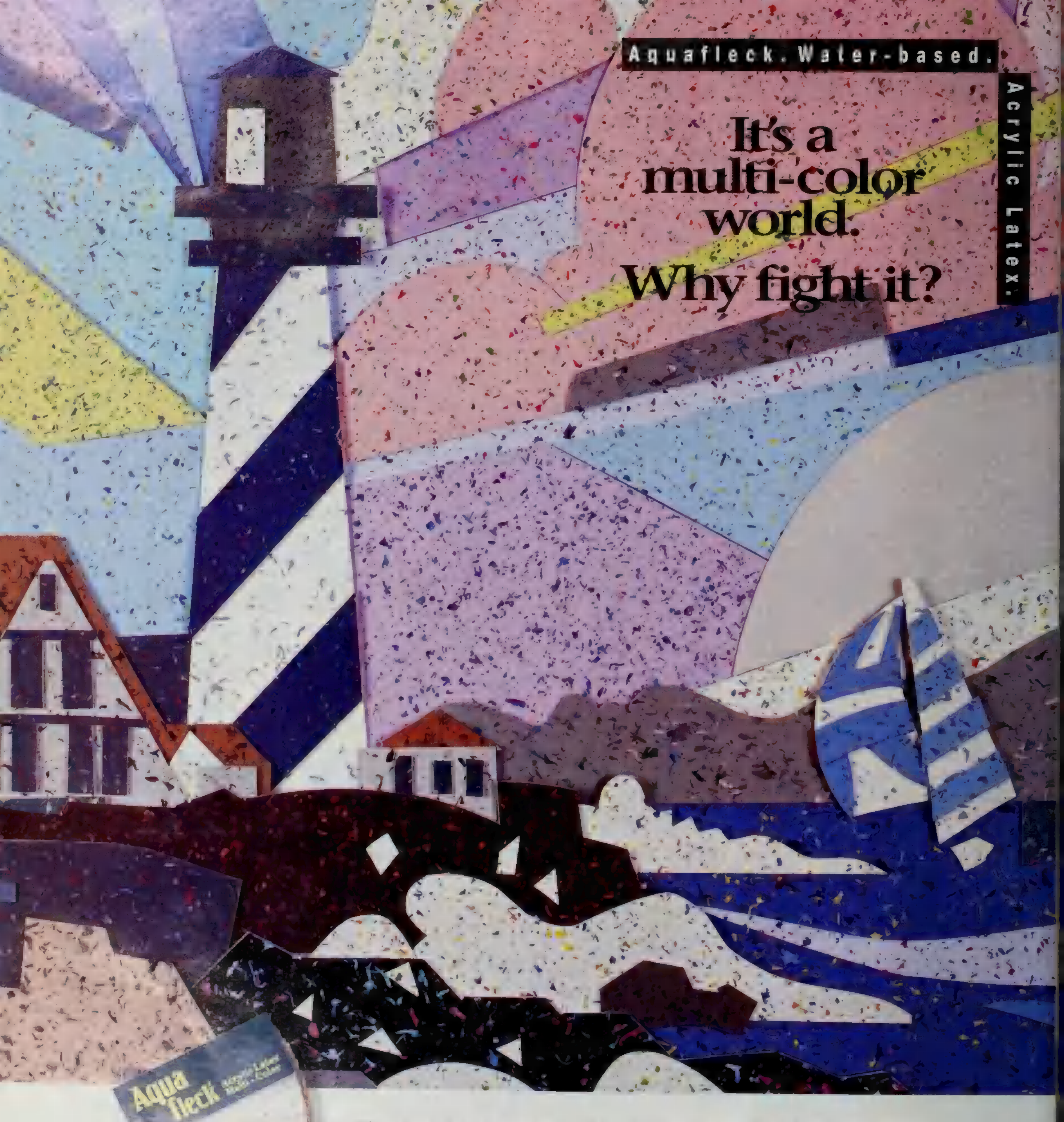
Architectonica's losing scheme proposed two separate buildings with glass facades that opened the theaters to the public in order to "dispel the notion that this facility is only for the elite." Rem Koolhaas' scheme compressed both theaters on one side of the boulevard, turning their lobbies into social "mixing chambers" and using the rest of the site as a public park. The PAC project is scheduled for completion in 1999. ■

Austria

Perrault Creates 'Minimalist Village' to Win Salzburg Sparkasse Competition



In his controversial winning design for the Salzburg Sparkasse competition, Dominique Perrault inserts a minimalist village into the green Austrian landscape. The project includes 211,250 sq ft of housing, shops, a bank, and an underground parking lot. These elements are arranged as market, square, street, and promenade to give an in-town scale to a perimeter site. Perrault's response to the mountainous environment is, in part, to maximize the open space while turning the visible roof "facade" into a pedestrian walkway. From the street, the project is largely transparent, with housing pavilions raised on pilotis, and glass facades lined with pivoting interior wood shutters. The construction start is on hold while public debate continues. *Claire Downey*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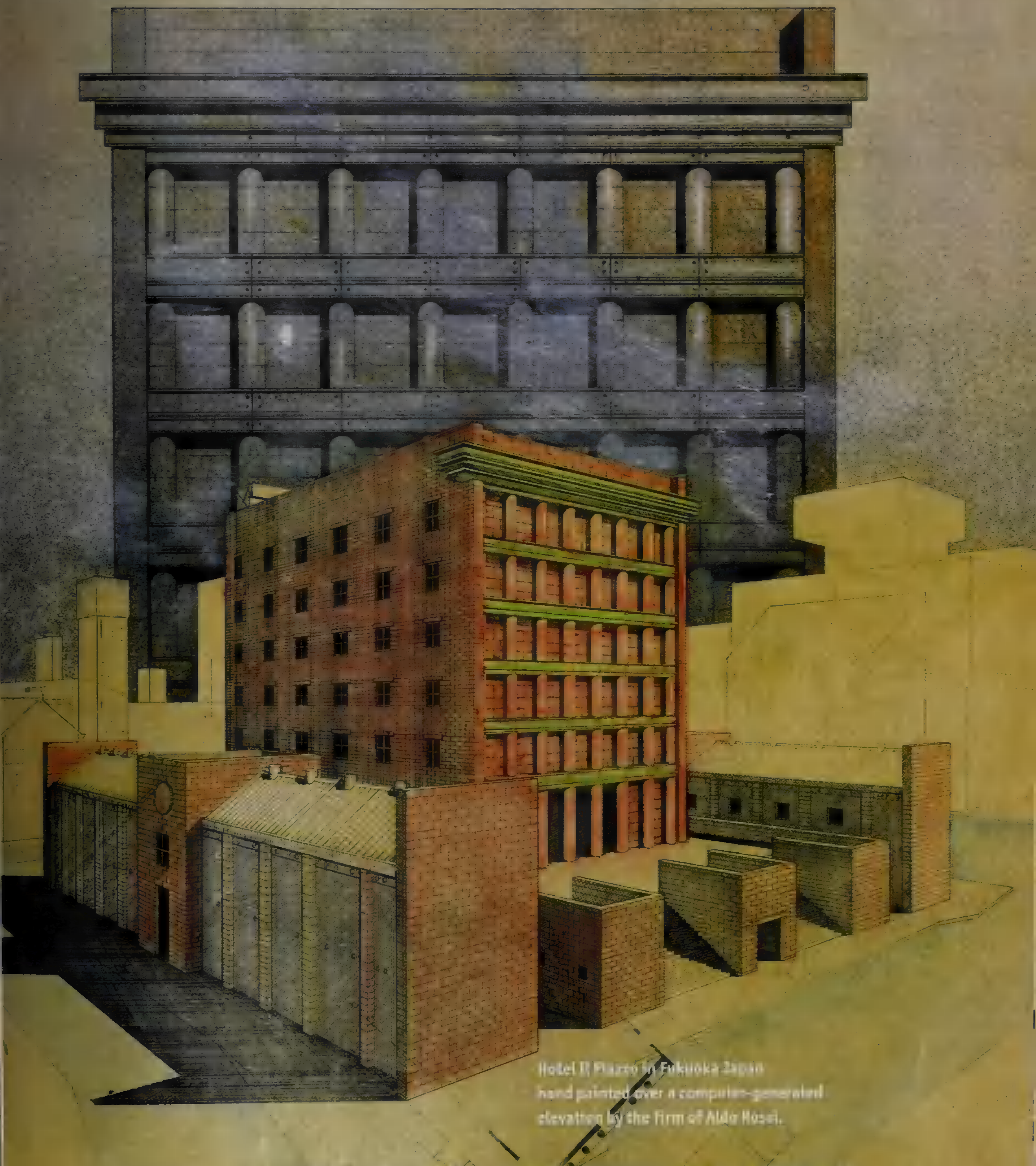

Hotel Il Palazzo in Fukuoka Japan
hand painted over a computer-generated
elevation by the Firm of Aldo Rossi.

A SPECIAL SUPPLEMENT TO ARCHITECTURAL RECORD

A NOTE FROM THE EDITOR

Terry Beaubois
Terry Beaubois & Associates
Palo Alto, California
Beaubois@aol.com

Last year the exciting new computer elements were hardware:

- the powerful color PowerBooks
- the PowerMacintosh desktop computer with the power of a workstation, and
- the digital camera.

These things are probably still new to many architects, so I want to mention them again, as tools to seriously consider incorporating into your practice. Each of these tools has been improved by Apple since last year. In 1995 and 1996 we'll see PowerPC versions of the PowerBook; even faster and more powerful Power Macintoshes (as well as the beginning of Macintosh clones from companies such as Radius, DayStar, and Power Computing); and an update of the digital camera.

This year some of the most exciting developments, from my perspective, have been in software.

1. Online services
2. QuickTime VR
3. Information Management Systems

Online

The development of online systems is so significant that if you have a computer and are not online, yet — seriously consider getting online. The connection with the online world is one that every architect can benefit from in many ways.

With online email you can communicate immediately and effortlessly with others who are on e-mail. I have exchanged e-mail with architects from England to Egypt and I even found one of the architects to interview for this article by [illegible] the keywords “architect” and “Newton” [illegible] America Online's Member Search [illegible].

> *“Quick Time VR is the killer application that architects have been waiting for.”*

Our local newspaper has a wonderful online service called NewsHound. With NewsHound I can set up certain keywords that are topics in which I have an interest and each day the NewsHound will bring to my computer any [illegible] that appears on the [illegible] wires with those keywords in it. It is a focused, efficient way of receiving news. I can [illegible] the paper when I feel like it, but for keeping up to the minute with the specific areas that are most important to me — it cannot be beat.

QuickTime VR

In my opinion, QuickTime VR technology from Apple Computer is the “killer application” that architects and other building industry professionals have been waiting for. For years we have been trying to look around a design or an existing building on our desktop computers — and with QuickTime VR we will be able to do so, much more easily than before. Look for QuickTime VR to develop as a major design and communication tool on the computer. As QuickTime VR becomes used in software programs and products, you will be truly amazed how it will assist us in more effectively communicating information about the 3-dimensional spaces that comprise our work.

Information Management Systems

This year I had the opportunity to observe how technical professionals in fields other than the building industry, are involving desktop computers in their work. I have always been surprised to be reminded that architecture, as a profession, has not been a leader in the application of computers. Perhaps an individual, a firm, or a University class, but as a profession, not so. I was amazed to see how much further along other professions were.

One such example of this is in the world of chemistry where they have LIMS — Laboratory Information Management Systems — computer software systems where the entire lab from each “bench top” to the project managers to the president are working on networked desktop computers. They are performing calculations, generating charts and graphics, preparing proposals and reports, having to satisfy federal and state codes and regulations, running their business, and performing tasks just as complex and sophisticated and any in architecture, design, and construction, but with the benefit of software and networks that ease the access to information, allow for 3-D viewing and design, and speed communication and reporting.

An important component of Computer Aided Practice in the building industry will be the development of information management [illegible] that are tailored to the building industry. [illegible] computer development from Apple [illegible] named OpenDoc will assist software [illegible] and users tailor computer functions [illegible] their own purposes. With developments like OpenDoc and the increase in speed and power of the desktop computer, I think we can look forward to seeing software that is much more able to assist us with our specific tasks, as well as be more easily combined with other data and other types of data, and then be printed out or transmitted easily.

It was clear by observing other technical professions that we are in a period where the management of information is the major activity of business and the successful management of information requires an efficient, well organized and well managed, networked computer system, where each individual has access to the information, both within and outside of their organization, necessary to perform their job well.

As publishers, product manufacturers, and other members of the building industry develop their use of their computer systems and capabilities, our desktop computer is where information in the form of text, graphics, and sound will converge for each of us. This multimedia business capability will allow us to successfully and more efficiently perform our services — as we leave the era of specialized computers and software and evolve into the age of the Computer Aided Practice.

Terry Beaubois *has been using computers in the practice of architecture since 1978. A graduate of the University of Michigan College of Art and Architecture, he earned a Masters of Architecture program in 1972. He has practiced architecture in Michigan, Massachusetts, and California. His design experience includes hospital, high-technology, public, hotel-resort, and residential design.*

Beaubois has lectured at Stanford University on the advanced use of computers in architecture and to the AIA PIA on computer-aided practice. He is also president of RDC Interactive Media, a firm specializing in the production of digital media for the building industry.

Macintosh and Architecture

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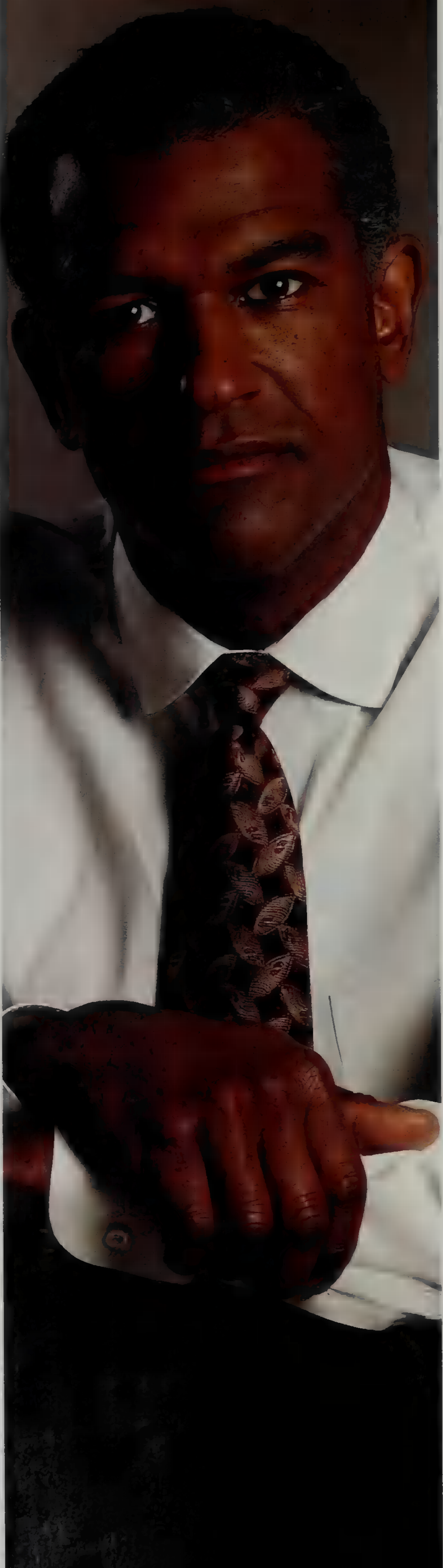

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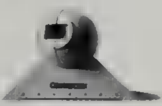

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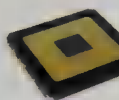

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*The Power Macintosh 6100/66 DOS Compatible, and other Power Macintosh models using SoftWindows from Insignia Solutions, run MS-DOS 6.2 and Windows 3.1. †For proof, ask for the 1995 Ingram study, comparing Power Mac computers to Pentium-processor-based computers running Windows. ©1995 Apple Computer, Inc. All rights reserved. Apple, the Apple logo, Macintosh, QuickTime and "The power to be your best" are registered trademarks of Apple Computer, Inc. Mac, Power Mac, Power Macintosh and QuickDraw are trademarks of Apple Computer, Inc. PowerPC is a trademark of International Business Machines Corporation, used under license therefrom. All Apple products are designed to be accessible to individuals with disability.

ALDO ROSSI, STUDIO DI ARCHITETTURA

New York, New York
Morris Adjmi, AIA

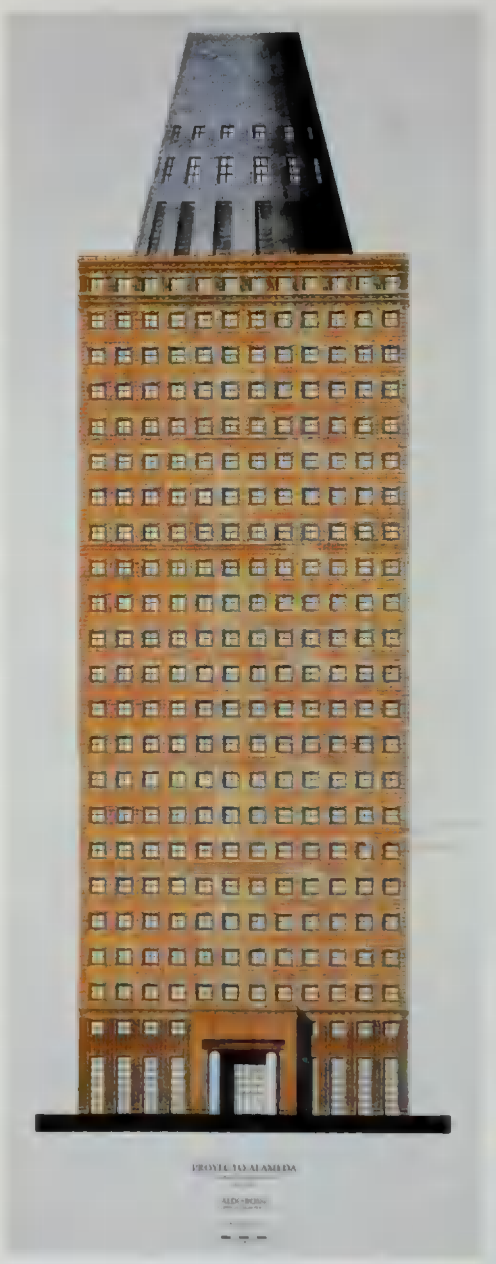
La Bella Macchina Architettonica

Aldo Rossi, one of the most important theorists and practitioners of contemporary architecture, employs 50 architects worldwide. Morris Adjmi, Rossi's U.S.-based partner, is carrying on the Rossi tradition through projects like the award-winning Il Palazzo Hotel in Japan, the Proyecto Alameda in Mexico, and Disney Development Company's Orlando-based headquarters.

Adjmi's office has been using Macintosh computers since it opened its doors eight years ago. Initially these computers were used only for letter writing and accounting, but slowly, Macintosh systems made their way onto the desks of every architect.

"We recently switched our design system from AutoCAD on IBM-compatible PCs to MiniCAD on the Macintosh," says Adjmi. "We find that the Macintosh platform is much easier to use, and the interface and final drawings are graphically superior. In keeping with Rossi's style, we try to put a hand-quality finish on all of our drawings. We typically manipulate a CAD drawing to get the ideal perspective view, then add color, texture, and shadows by hand on a computer printout."

> *"The Macintosh enables us to quickly explore design alternatives."*



When asked how the use of computers has changed the nature of his practice, Adjmi replied: "My 12-person staff can now do a lot more work in less time. The Macintosh enables us to quickly explore design alternatives."

One of the difficulties of managing international projects is keeping in touch with the home office and clients across multiple time zones. Adjmi has found that his Newton MessagePad eases this burden. He uses this handheld computer to store names and phone numbers, to take notes, and to communicate via fax and e-mail while he's on the road. The firm also uses America Online's electronic mail facility to transfer files between associate architectural firms.

The studio's enthusiasm for Macintosh technology has led to other exciting projects. The Milan office is taking the lead on the development of a CD-ROM—based collection of Aldo Rossi's sketches and architectural designs. And using the Macintosh and Quark Xpress, Adjmi edited *Aldo Rossi: Architecture 1981-1991 and Aldo Rossi: Drawings and Paintings* for Princeton Architectual Press, both of which received AIA honor awards.

Architects in Rossi's firm hand painted a computer-generated elevation of Proyecto Alameda in Mexico to create this stunning presentation piece.

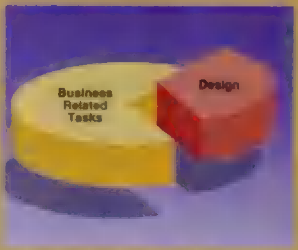
Hardware: Power Macintosh computers, Macintosh IIci, Quadras, PowerBook, HP DesignJet 650C printer, color scanner
Software: MiniCAD, Quark, Illustrator, Photoshop

Macintosh and Architecture:

Computer Aided Practice

In choosing a computer system for your architectural practice, you can usethe same checklist that you'd use to hire a new architect. An importantquality you'd look for is versatility. After all, in given day a typicalarchitect or building industry professional might have to write a letter,give a presentation, update a project timeline, publish a proposal, putfinishing touches on working drawings, and of course, design. You'd also lookat a candidate's track record-is there a history of innovation? Is thecandidate visually oriented and friendly? Evaluating today's computer systemsby these standards, the computer that best meets and exceeds theseexpectations is the Macintosh from Apple Computer, Inc.

[illegible] ideas on how you can use the [illegible] to enhance all facets of your architectural practice-notjust computer-aided design tasks — but Computer Aided Practice. Whetheryou're new to computers or a veteran Macintosh or IBM-compatible computer user, you'll find advice, tips, and information on new technologies that you can put to work in your own firm. You'll also see how ten diverse architectshave been using Apple computers, 3-D software, online services, digitalcameras, and a host of other technologies to improve the way that they run their computer-aided practices.



Studies show that architectural firms spend about two-thirds of their time on business-related tasks and only one third of their time performing design and building anaylsis related tasks. Incorporating Macintosh computers into your practice can help you get all of these tasks done with greater efficiency and quality.

continued on page A6

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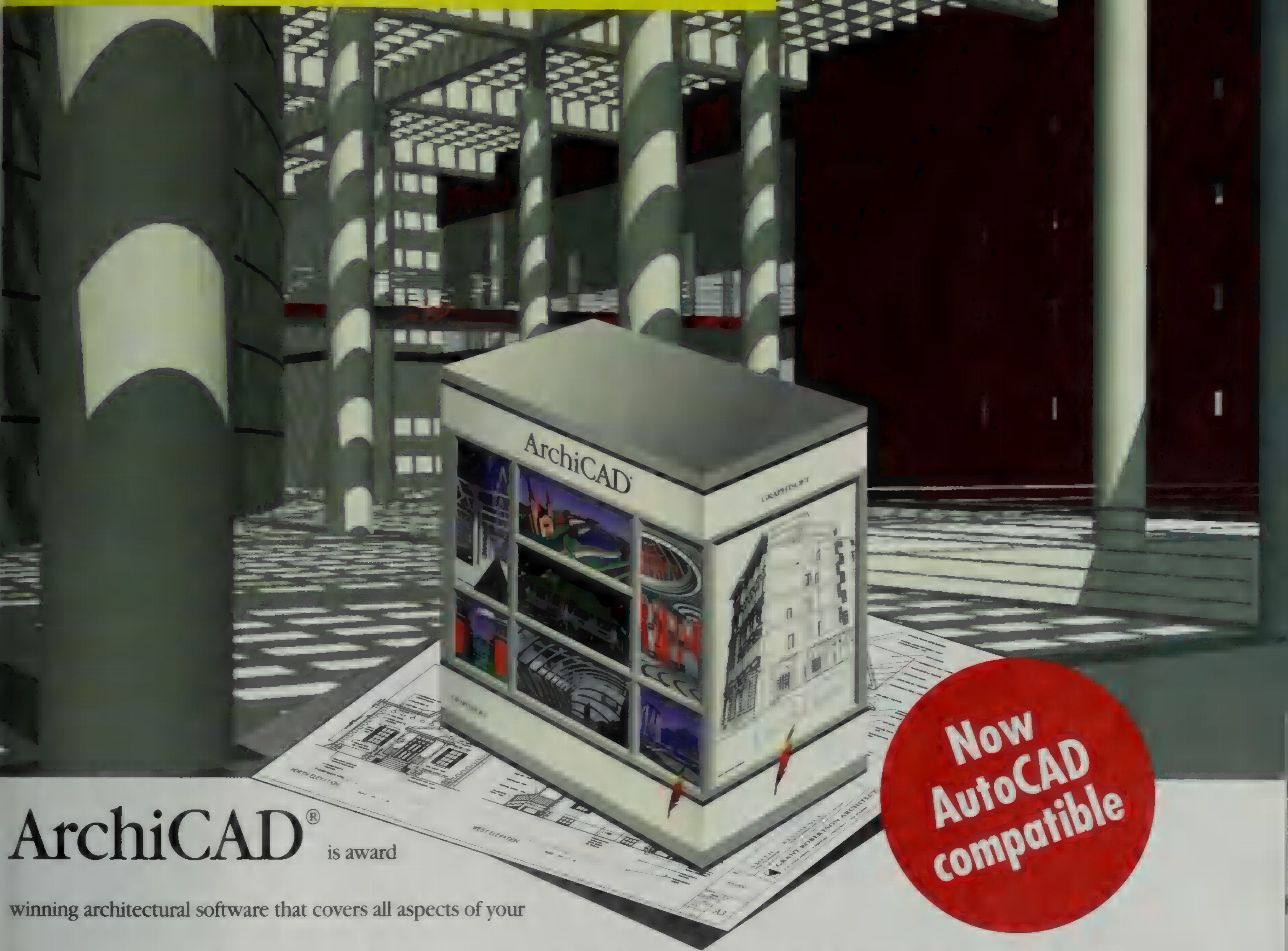

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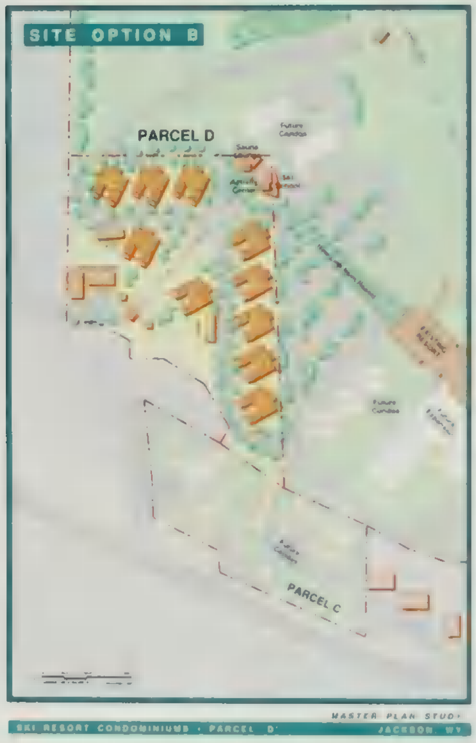
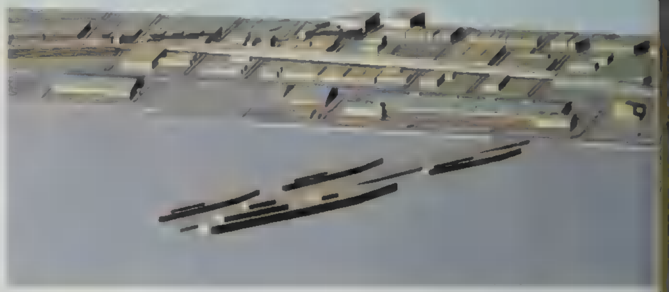
Mark E. Strauss, AIA, APA

An Efficient All-Macintosh Office

"By nature, architectural planning and urban design requires a great deal of written and graphic information," says Mark Strauss of Jambhekar Strauss. "Using the Macintosh we can quickly and easily combine diagrams, photographs, environmental reports, bids, and company information in attractive spiral-bound booklets."

Strauss has been working with Macintosh computers for more than half of his 18 years as an architect and urban planner. Projects he's worked on at his two-year old firm and his previous position as Director of Planning at Kohn Pederson Fox (KPF) include the master plans for West Point, the Homeport Navy Base on Staten Island, the Philadelphia Station Railyards, and Boston Properties' Cambridge Center. The firm is now involved with projects ranging from community master plans to rail station designs.





Strauss uses Macintosh computers for everything from studies for this Staten Island redevelopment project, to online business prospecting.

Jambhekar Strauss uses Macintosh computers for virtually all aspects of its practice. Architects in the firm typically create 2-D plans in PowerDraw, move them over to DesignWorkshop to create 3-D cityscapes, then use Photoshop to superimpose building images over site photos. Strauss likes to use DesignWorkshop for quick studies, because it's fast and easy to manipulate. His partner, Sudhir Jambhekar, who previously had no computer experience, is now fully adept with his own Macintosh PowerBook.

For creating customer proposals and final reports, they use Quark to integrate all the components of a project into a professional-looking deliverable. Camera-ready art is delivered in electronic form directly to a printer. And for special projects, images can be enlarged to 3-by-12 feet by sending it to a service bureau's Versatec 8900 color plotter.

> *"By totally embracing the Macintosh technology, our six-person office is able to more effectively compete against larger groups."*

Strauss has also found America Online, an online service with more than 4 million subscribers, to be useful in looking for new business. His firm religiously scans the Commerce Business Daily bulletin board for upcoming government architectural projects. They've also used America Online's architectural forum to place a classified ad for a new employee.

"We're small, efficient, and economical. By totally embracing the Macintosh technology, our six-person office is able to more effectively compete against larger groups. These computers help us respond quickly to client concerns and create higher quality designs."

Hardware: 3-Macintosh Quadra 650s, PowerBook, scanner, QMS 11x17 printer
Software: PowerDraw, DesignWorkshop, Adobe Illustrator, ModelShop, Photoshop, Quark XPress, Microsoft Write, QuickDex, America Online, Microsoft Excel

Macintosh—The Computer for the Practice of all aspects of Architecure

The essence of what makes the Macintosh the best tool for architecture is that it works the way you work—visually. And a computer that works like you is going to be fundamentally easier to use. The Macintosh was designed from the ground up with a visual interface. Other platforms have "curtain wall" inter-faces that may look like the Macintosh, but that merely dresses up a computer structure that requ[illegible] to think more like a computer programmer than a [illegible] What's more, Apple Computer, Inc. has communica[illegible]e, visual way of doing things to its developers throu[illegible]idelines. These "building codes" help software [illegible] create Macintosh software applications that also [illegible] you do. So basic tasks that you want to perform—saving files, pasting images into documents, and so on—all work more or less the same way, no matter what type of application you're using. And this means you can spend more time doing the task at hand, rather than reading software manuals.

When shopping for a computer system, 'ease-of-use' isn't as easy to measure as RAM, ROM, or processor speed. But it's an essential feature in a profession like architecture, where you may have to switch between a half dozen different types of software applications in a single day. And every hour not spent figuring out how to use your computer is another hour that you can be working on a task that you can bill to a client. All-in-all, the Macintosh computer's visual nature and superior ease-of-use, along with the following advantages listed, add up to the best long-term computer value for your architectural practice.

continued on page A8

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DesignWorkshop is available from MacWarehouse, MacZone, and direct from Artifice. Model and Radiance rendering by Peter Horne, Univ. of Oregon. [1]Macintosh Sci and Eng. Report, [2]MacUser UK, [3]MacWEEK, [4]MacWorld

503-346-0782 fax. Eugene, Oregon. **Artifice, Inc.**

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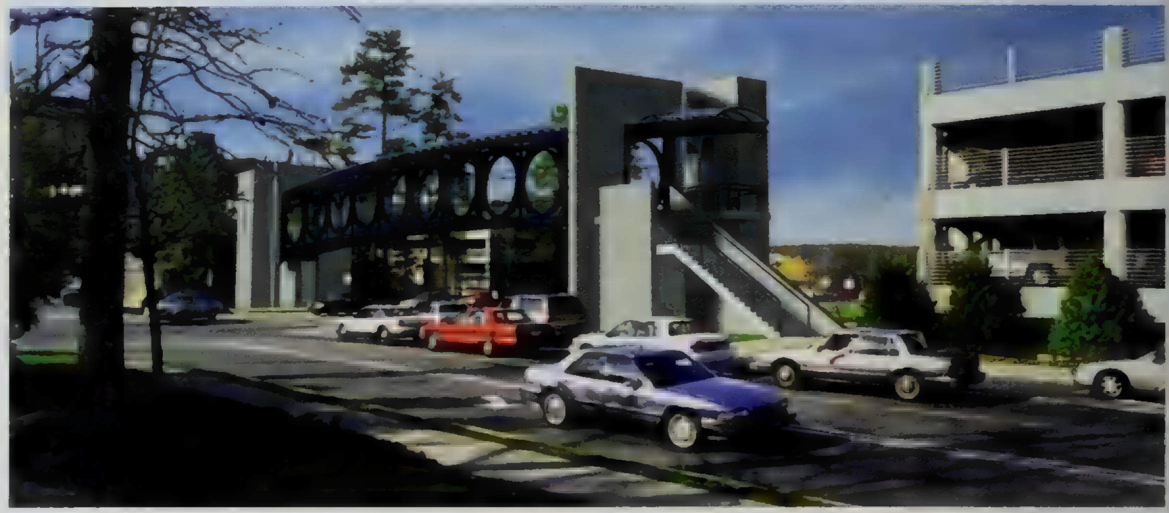
ALAN BROWN ARCHITECTURE/CONSULTING

Atlanta, Georgia
Alan Brown, Architect

Bridging with Clients Through 3-D

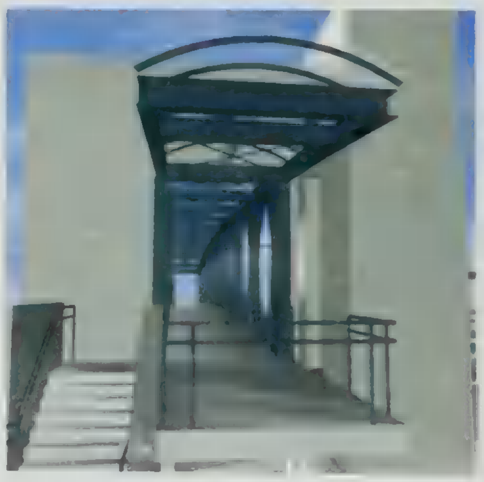


Alan Brown uses 3-D tools like form•Z and ElectricImage to more effectively communicate and sell his designs.

"Architecture is the study of three-dimensional forms in space, and the Macintosh is an excellent advanced tool for exploring the relationship between form and light," says Alan Brown, principal of an architectural consulting firm.

Brown's expertise in Macintosh modeling, rendering, and animation has earned him a host of impressive architectural projects. The artists working with the 1996 Olympic committee hired him to create a "fly-through" animation of the Atlanta Natatorium for studying event graphics and camera angles. He's working with Heery International to model a multistory office tower for the study of its form and design details like brick patterns, glass color, and lighting. And another client, Nix Mann Viehman Architects, recently hired him to create a walk-through rendering of a new laboratory, so he can help evaluate everything from natural light to new faucets.

"Most clients can't read blueprints, so creating 3-D renderings and animations makes it easier to communicate and present architectural designs," says Brown.



One of his projects that illustrates the power of this approach is a pedestrian bridge that connects two adjacent Atlanta hospitals. Collaborating with Jimmy Smith at Nix Mann and Associates, Brown modeled the hospital buildings and new bridge in form•Z, a Macintosh-based solids modeler. He then rendered these structures, adding surface textures and lighting, using ElectricImage Animation System. With a video camera he captured a digital image of the building site, then placed PhotoCD images behind the structures with Photoshop. To give his presentation graphics a handmade feel, he printed them on watercolor paper.

> *"The Macintosh frees me to give in to my creative whims."*

"With just a set of blueprints, it would've been hard to win the approval of the two different teams of hospital administrators. The 3-D rendering helped our clients better understand how the new bridge would benefit their patients and staff. Using the Macintosh, we could sell the project on a conceptual level before spending a lot of resources on engineering analysis and detailed design."

Brown considers the Macintosh to be the best computer for architects and artists because of its intuitive interface and emphasis on high-quality color and graphics. "The Macintosh frees me to give in to my creative whims.

Because applications are so easy to learn and use, there are no barriers to experimenting with new applications and technologies."

Hardware: Power Macintosh 8100AV, Quadra 800 with Radius VideoVision, Quadra 650, PowerBook, Macintosh IIcx with Rocket, Macintosh Classic, Newton, Sony Hi8 V-Deck
Software: form•Z, ElectricImage Animation System, Premiere, Photoshop, MiniCAD Blueprint, Adobe Illustrator, Macromedia Director, Stratavision 3D, Freehand, Intergraph Microstation

The Macintosh Advantages

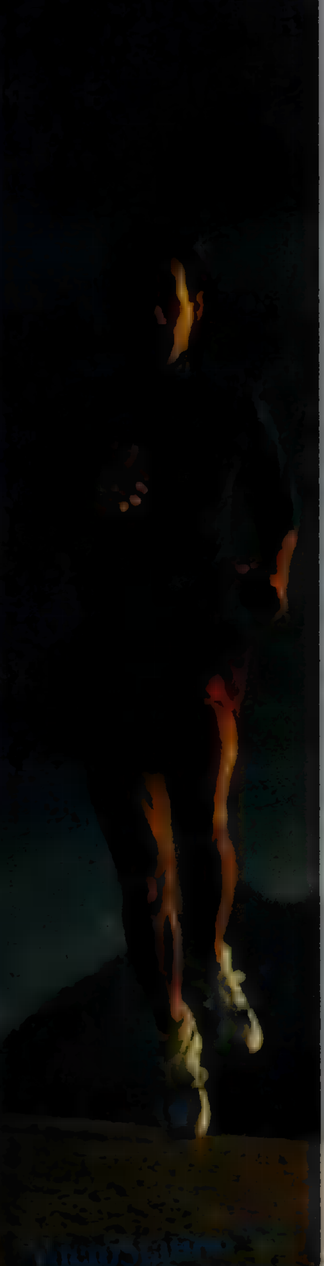
- *A system designed with visual tasks in mind*
- *Actual "Plug and play" capability*
- *Easy to learn and use software*
- *Compatibility for fitting into any environment*
- *Painless networking and communication*
- *Ultra-fast RISC performance at affordable prices*
- *A track record of seamless technology upgrades*

Later in this article, we'll cover each of these points, explaining how these advantages can provide you with more opportunities [illegible] your [illegible] and strengthen your practice.

What We Can Learn From Graphic Designers

There are quite a few similarities between the professions of architecture and graphic design. Both are creative, visual, service-oriented businesses incorporating both text and graphic information. Both rely on close, responsive, collaborative relationships with clients. And both are professions that have profit margins that are dependent on the efficiency of their employees. There is, however, one big difference between the two—the graphic design profession is about five years ahead of the architectural profession when it comes to computer adoption.

continued on page A 10



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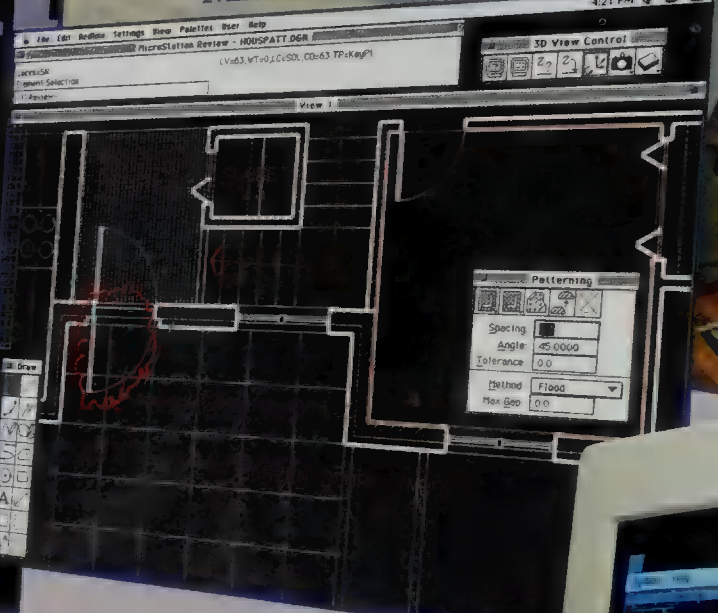

MicroStation Masterpiece

> *"MicroStation V5...now Power Mac-native...(is) the fastest 3-D CAD program on the Mac by far."* MacWEEK, April 10, 1995

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LENNON ASSOCIATES

Del Mar, California
Jim Lennon, AIA

Mastering the Science of Architecture

You won't find any drafting boards at Lennon Associates, a firm that specializes in health care architecture. They use computers for everything from design to on-site construction reports. Their extensive use of Macintosh computers and Newton MessagePads is more typical of a physics lab than an architect's studio. Their analytical approach to solving customer problems through computer simulations provides a glimpse into the future of computer-aided practice.

"Right now architecture is a prototype business. Architects get one try at a building and the client has to live with the outcome," says Jim Lennon. "Computer simulations, on the other hand, let us test a design before it's built. They help us learn from our mistakes."

Optimizing the flow of staff and patients is a top priority in health care architecture. Each hospital staff member or room that can be eliminated through efficient building layout saves a health care provider millions of dollars over the life of a building. Using Macintosh simulation software, Lennon has raised this art form to a science.

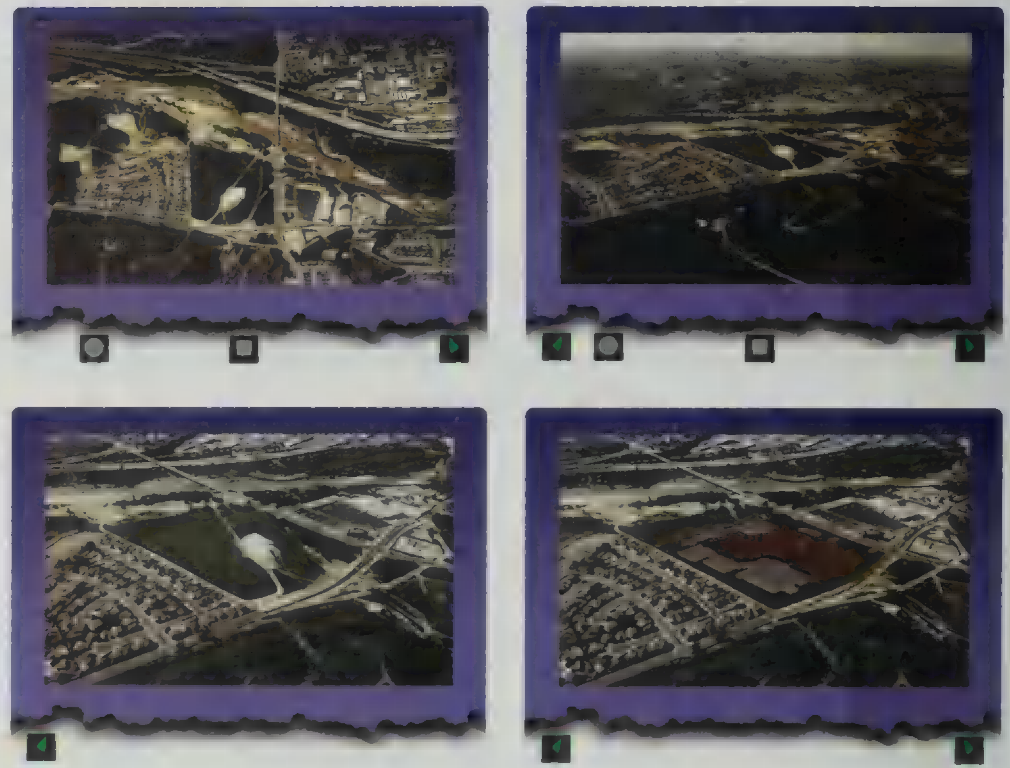
Lennon's staff spends the first month of a new hospital project using their MessagePads to collect data on the flow of patients and staff around a client's existing facility. Using this data and Extend, a general purpose simulation language, they develop a computer simulation of hospital activities. Then as they work on the new hospital floor plan, the simulation helps them make design decisions. It might influence them to move the x-ray room closer to the emergency room or place patient queue monitors in key areas.

"After we present our simulation to hospital administrators, we brainstorm on ways to make a hospital more efficient. In one case this resulted in the development of a Macintosh-based patient tracking system," says Lennon.

Final design options are modeled in form•Z and rendered and animated in StudioPro, enabling the client to take a virtual tour through the building before choosing a final design. Final designs are often translated into AutoCAD, and construction progress is monitored using Newton MessagePads.

Lennon comments on why he chose to standardize on Macintosh computers: "We just couldn't do this type of work on any other computer platform. The visual nature of the Macintosh enables us to show movements through a building and convey vast amounts of information very easily."

> *"Computer simulations let us test a structure before it's built. They help us learn from our mistakes."*



Lennon Associates utilized a multimedia presentation to zoom in on a proposed site for a hospital.

Hardware: 3-Power Macintoshes, Quadra 840AV, 3-Quadra 605s, Macintosh LCII, 4-Macintosh Classics, 2-HP 550C printers, Fargo dye sublimation printer, HP plotter, Newton MessagePads
Software: Extend, StudioPro, form•Z, PowerDraw, Photoshop, Painter, Design Workshop, Filemaker Pro, Excel, MacWrite Pro, Pagemaker

Today it's difficult to find a graphic design firm that doesn't do at least part of its work on computers. But looking back at graphic design ten years ago, designers were skeptical of computers. Designers were afraid that high-quality fonts and clip art would put them out of business. And many designers clung to the old way of doing things, because they couldn't see beyond the expense and the training needed to incorporate computers into their business. Then three rapid changes upset the status quo and gave early adopters a competitive advantage, forcing many non-adopters out of business.

These changes were:

- Computers and software went dramatically down in price and up in efficiency.
- Computer-related service bureaus formed, helping firms [illegible]ents and overhead.
- Computers empowered designers with new capabilities, such as in-house typesetting, instant color comps (previews), and digital photo manipulation.

We predict you'll see the same forces at work in the building industry and in particular in architecture. Software developers are already at work developing more intuitive, less expensive 3-D design applications. Service bureaus are beginning to offer computer-related services that help your business run more efficiently. For example, some surveyors will deliver 3-D topographical maps in computer formats, and you can now hire specialists to create 3-D walkthroughs. And firms that offer new computer-aided services, such as 3-D virtual tours through buildings, are gaining a competive advantage over traditional firms.

continued on page A12

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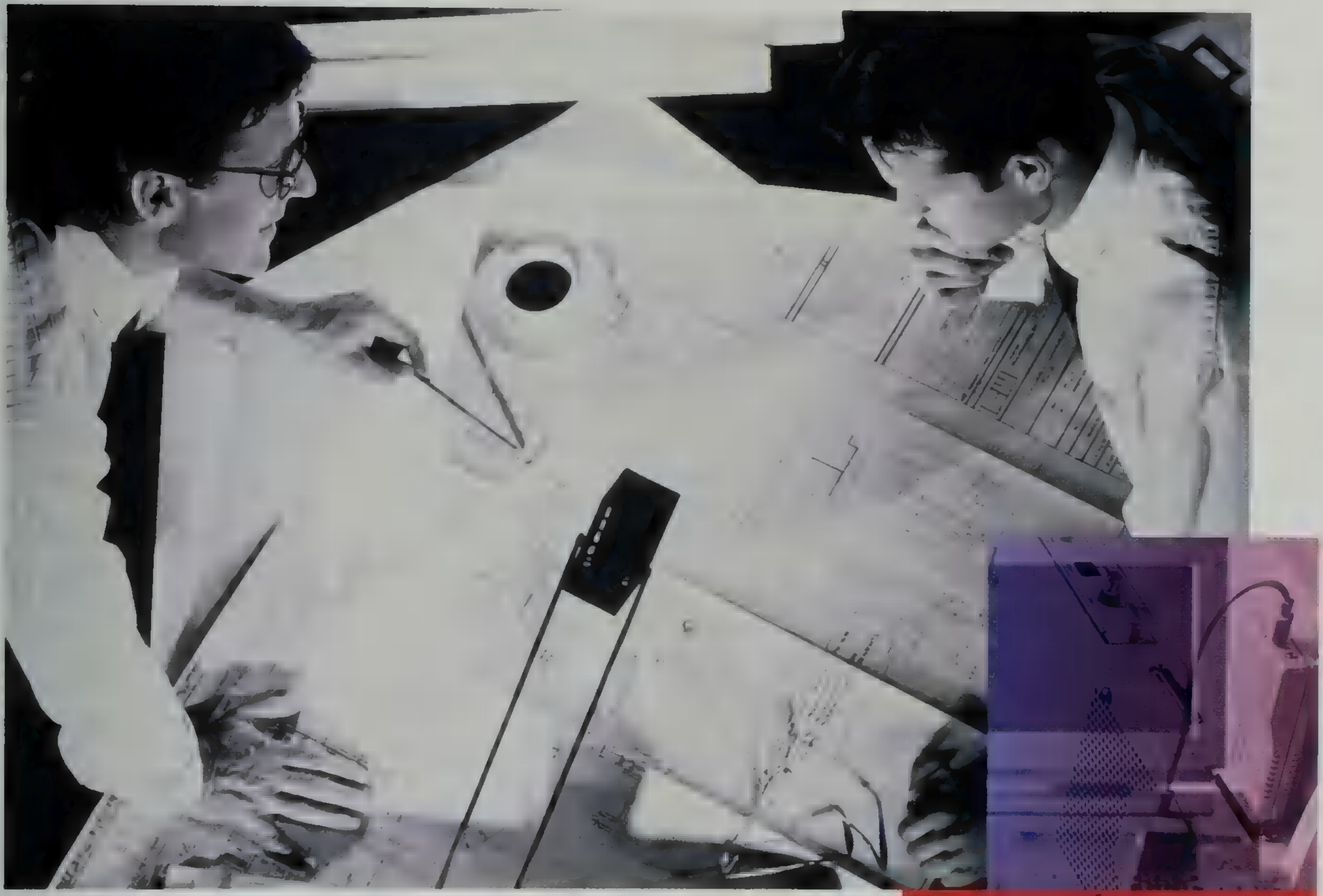

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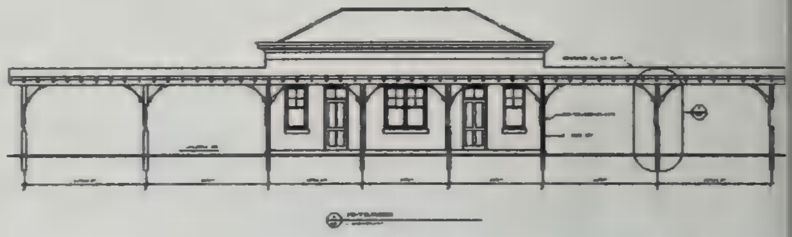
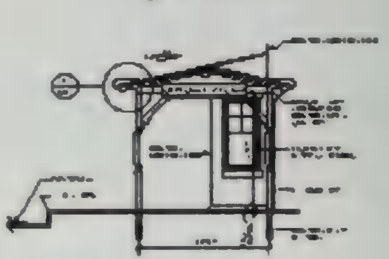
THOMAS HARLEY ▪ ARCHITECTS

Indiana, Pennsylvania
Thomas Harley, Architect

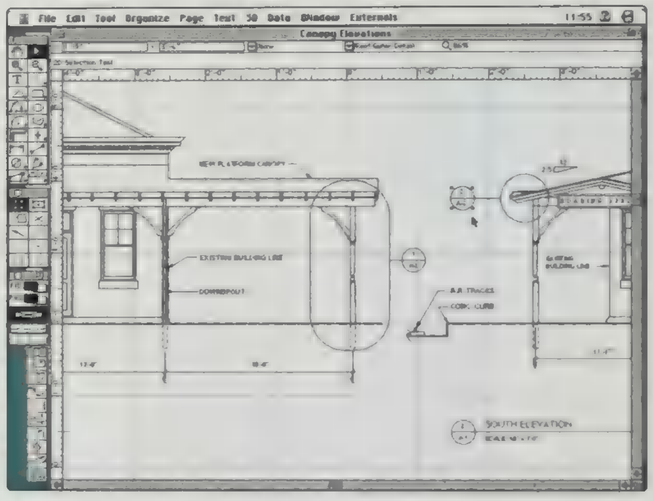
Keeping an Eye on the Bottom Line





Harley's firm is using MiniCAD to develop the plans for Indiana's Roaring Springs Railroad Station restoration project.

Thomas Harley runs a ten-person architectural practice in a quaint little place that's best know as the hometown of the movie actor Jimmy Stewart. Over the years, Harley has built up a loyal following of clients, who keep him busy with soup-to-nuts design projects such as the local pharmacy, ice skating rinks, a train station restoration, and even the new Jimmy Stewart Airport Terminal. In managing this mix of small and large projects—sometimes 150 at a time—the firm has found the Macintosh to be essential in keeping the balance sheet healthy and clients happy.



"When I joined the group, I was handed a mountain of paper and an invoicing process that took ten to fourteen days a month to complete," says Sherry Brezinski the firm's office manager. "Then we got MacArchitect software up and running on our Macintosh computers, and now I can finish the invoicing, with much greater accuracy, in a day."

The firm soon discovered other advantages to using MacArchitect to manage their business. When Federal Aviation Administration (FAA) auditors requested a detailed accounting of all charges on the Jimmy Stewart Airport, they were able to send it off in minutes. Project leaders could quickly check labor hours of ongoing projects. And the software provided them with a convenient way to track and bill clients for blueprints, photocopies, postage, and extended services.

Brezinski talks about how this system improved client satisfaction: "Now clients know what our fees cover, and if anyone calls to question an invoice, we can resolve issues immediately over the phone."

Harley's firm also uses Macintosh computers for other aspects of their practice. Proposals are written in Microsoft Word, and integrated with Microsoft Project timelines and Excel spreadsheets. TouchBase Pro helps them track important information about clients and contractors. They use MiniCAD for architectural drawings and Virtus Walkthrough for 3-D renderings. And their head designer, Tim Morris, says they can get computer-savvy employees up and running with CAD in less than a week.

Karen Welsh, one of the firm's architects, also talked about how they use their Apple QuickTake 100 camera. "A client on a tight budget asked for a new front porch design. So I ran over to the site with our three-day old QuickTake camera, took a photo, dropped it into MiniCAD, and created dimensioned drawings, all in under two hours."

Summing up why his firm uses Macintosh computers, Harley says, "The Macintosh helps our most skilled and highly paid people work more efficiently."

> *"The Macintosh helps our most skilled and highly paid people work more efficiently."*

Hardware: 2-Power Macintoshes, PowerBook, 2-Macintosh IIcis, Macintosh SE, QuickTake 100, Apple LaserWriter, Apple Personal LaserWriter, HP color plotter, Bernoulli back-up
Software: MacArchitect, TouchBase Pro, MiniCAD, Virtus Walkthrough, Microsoft Word, Microsoft Project, Microsoft Excel

Apple put the Power into Power Macintosh

Most graphic designers work in two-dimensions and much of the information in architecture, graphically relating to the building, is three-dimensional. Until a little over a year ago, there weren't inexpensive computers with the power to handle 3-D work effectively. The availability of super-fast RISC microprocessors (Reduced Instruction Set Computing— like the PowerPC chip) in desktop computers, and more specifically the Power Macintosh, has changed all that. With the Power Macintosh, architects can now afford to buy enough desktop computer horsepower to manage all aspects of their work, not just office productivity. This opportunity allows architects to [illegible] to the stage of computer use in their practices, where [illegible] designers [illegible] number of years ago.

A Track Record for Innovation

There is another very important thing we can learn from graphic designers — what type of computer to buy. Most graphic design professional use Macintosh computers in their practice. Even in larger corporations that are "standardized" on the IBM-compatible computer, when you visit their graphics department - there they are - $250,000 worth of Quadras or Power Macs and a department head that will protect their Apples with a passion — because their life would be miserable if they couldn't use Apple computers to do their work. This is because the Macintosh offers visual artists, without a doubt, the best set of hardware and software tools for design.

continued on page A14

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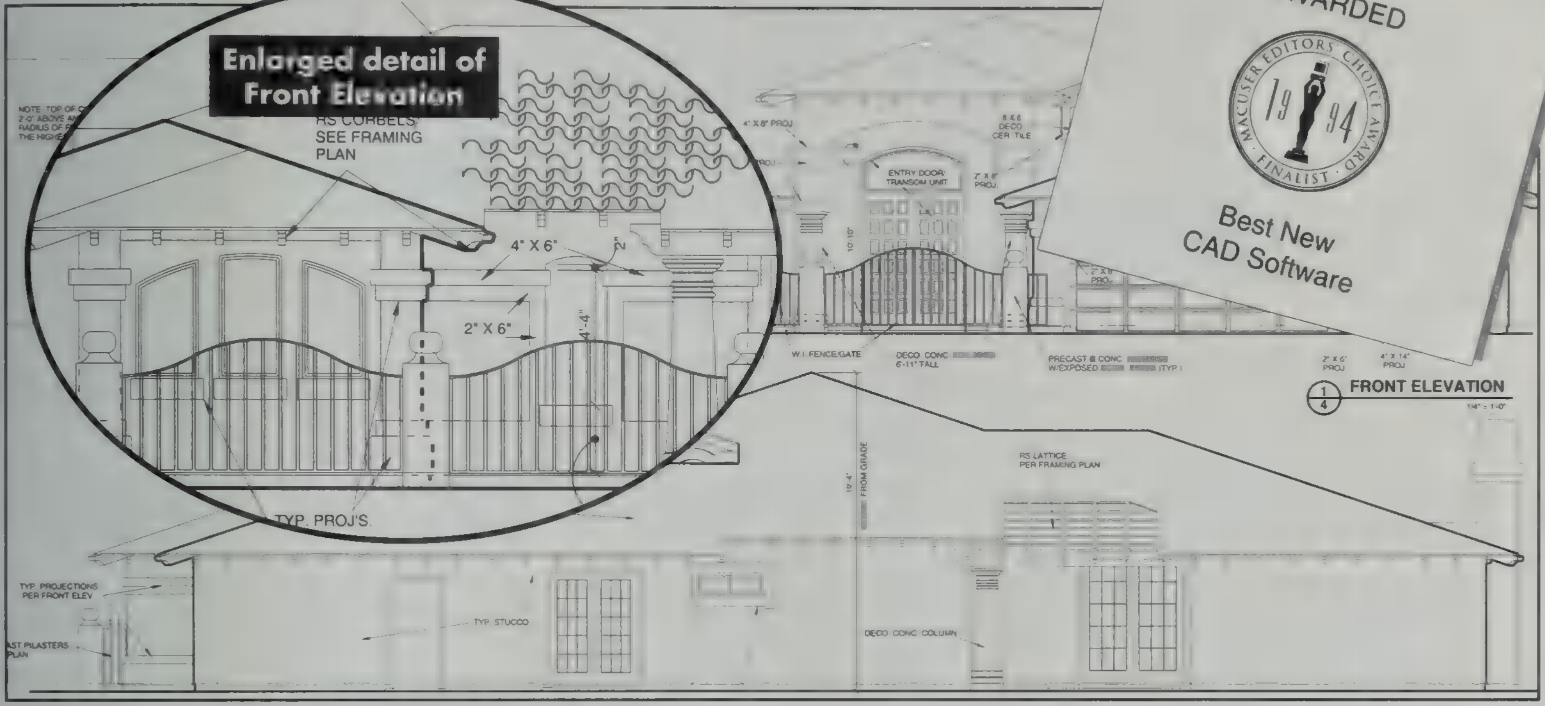
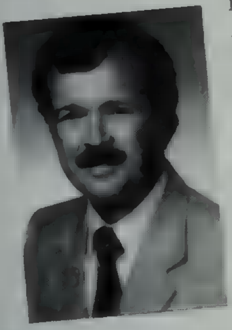


Reduced section of drawing by Joe Webb created in PowerDraw

Engineered Software,



It's been almost a year since I started using PowerDraw in my architectural practice, and I'd like you to know how pleased I am with my decision to purchase your product. After just two days of working with PowerDraw, I was able to start my first working drawings. I was quite comfortable with the results and have since gotten to the point that I'm probably twice as fast using PowerDraw as hand-drafting. While I was concerned, at first, that I might be "left out" by not using a PC-based system and software, I've recently completed a large contract that was started on a PC using AutoCAD. Translating the DXF files was easy, and there was virtually no difference in working with the files.

What was really gratifying was working with your patient and supportive staff every time I had a question. They gave me confidence and led me to realize that this indeed is very highly-refined software. That realization ended the frustration of learning and turned it into pleasant discovery. I'm completely satisfied with PowerDraw.

Sincerely,

Joe Webb

Joe Webb, Architect
Phoenix, Arizona

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archiTREK

Santa Barbara, California

Mindy Rosenblatt

Rendering Her Clients Speechless

Mindy Rosenblatt's computer-animated "fly-throughs" of structures have an undeniable dramatic flair. Sometimes structures grow up from lines on a blueprint lying on a table. An old building may sink into the ground to make way for a new one. And in a virtual tour through a residential estate, visitors are greeted by a red '57 Chevy zooming down the driveway, roaring fireplaces, and a twinkling Christmas tree.

> *"3-D animations help architects come up with the best possible client designs before construction."*

Beyond the glitz, Rosenblatt discusses the practical side of the services she provides: "3-D animations help architects come up with the best possible client designs before construction," says Rosenblatt. "Most clients really don't get a good sense of scale from blueprints and models. By putting a design on what is essentially a television, you're communicating to clients through a medium that they've learned to understand at an early age."

Many architectural firms hire outside contractors for animation and simulation services because of the equipment and skills required. These visualization aids are often well worth the effort for projects in which environmental impact and public acceptance is an issue.

Such was the case with the administrators of the Samarkand Retirement Community, who wanted to get city approval on three new structures in an established part of Santa Barbara. Neighbors were concerned about structure heights, and Rosenblatt's fly-by animations showed residents how the new buildings would look with landscaping in place. She also included animated design variations that minimized the visual impact of the buildings. After benefiting from several of Rosenblatt's animations, the Santa Barbara Planning Department is now requiring animations on many other large projects.

This Victorian farmhouse, designed by Alex Pujo Architects, was animated to enable the clients to take a virtual walk through their future home. Rosenblatt used AMAP and TreePro applications to add mature landscaping to the site.

To create realistic renderings, Rosenblatt first scans topographical maps into form•Z to create a 3-D terrain model. She builds structures in ArchiCAD them moves all these objects into ElectricImage, where she adds textures, color, and landscaping. Finally, she uses Photoshop to place models against a backdrop of aerial site photos and the Santa Barbara skyline.

Rosenblatt, a self-proclaimed computer nerd, has a Macintosh system that would be the envy of most software developers. Because "animation consumes memory like kids eat chocolate", she has loaded her three Quadra computers with almost 400MB of RAM.

Rosenblatt has a computer science degree and the skills to master any computer system. She uses a Macintosh because she feels, "The intuitive approach of the Macintosh liberates the right hemisphere of my brain."

Hardware: 2-Quadra 950s, each with 160MB RAM, Quadra 700 with 64MB RAM, Tektronix PhaserIISCX printer, Sony LVR3000 laser disk recorder, NuVista+board, Exabyte 8mm tape drive, 7GB Fujitsu hard drives, LaCie Silverscanner II

Software: Photoshop, ArchiCAD, form•Z, Electric Image, AMAP, TreePro

Apple and Innovations

Over the years, Apple has been first to market with an amazing number of innovations that directly benefit visual artists. The Macintosh was the first computer to offer WYSIWIG (what-you-see-is-what-you-get) operating system interface, providing designers with the assurance that anything printed would look the same as the image on the computer screen. Apple was the first to ship their computers with affordable laser printers and high quality fonts. And today the Mac OS is the only operating system that offers users a built-in high-quality graphics engine (QuickDraw), color matching (ColorSync), a video movie-player (QuickTime), and the capacity to handle any language system, including Chinese, Japanese, and Arabic (WorldScript). (The Macintosh computer's ability to switch between multiple language systems is essential if you're involved in international work.)

[illegible]ner innovations that are becoming increasingly impor[illegible]ts [illegible] digital photography (using a QuickTake camera) and photographic quality 3-D, 360-degree walkarounds (using QuickTime VR). With a QuickTake camera, you can quickly take pictures of sites or structures, plug the camera into a Macintosh, then drop digital images into proposals or presentations. You can even use a photo editing application like Photoshop to combine photos with your own computer-rendered designs. (See the Alan Brown and Lennon Associates interviews for examples of this capability.)

QuickTime VR— Another Apple Innovation The Perfect Tool for Architecture

QuickTime VR (virtual reality) is a software tool that lets you quickly build, either from photographs or computer generated images, 360-degree "virtual" spaces that can be navigated through on the computer screen. You can even "connect" rooms, allowing you to "move" from space to space and look around those spaces. QuickTime VR is different than a "fly-through" in that it is not "linear" (in a fly-through you

continued on page A18

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Apple Peripherals

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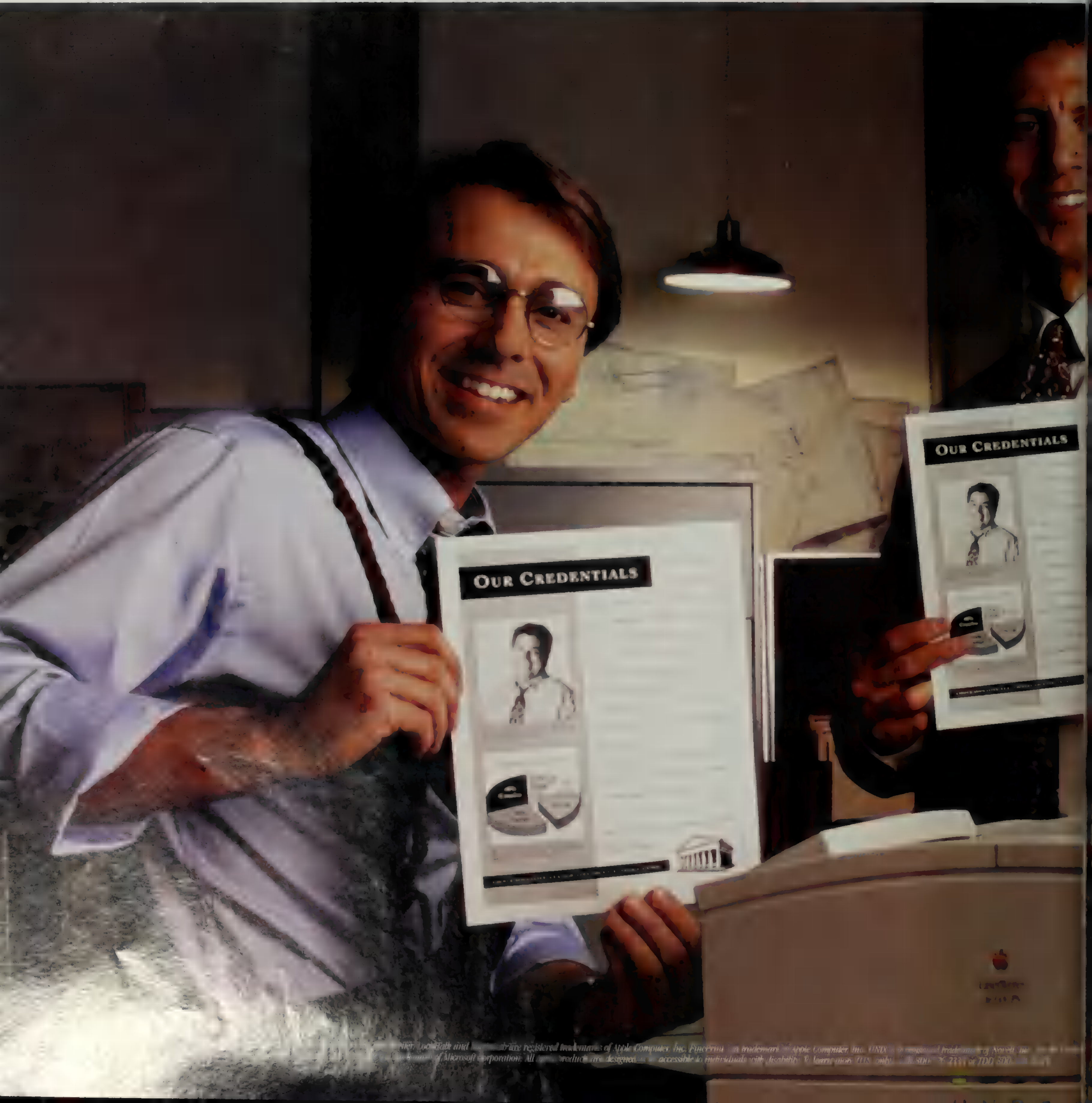

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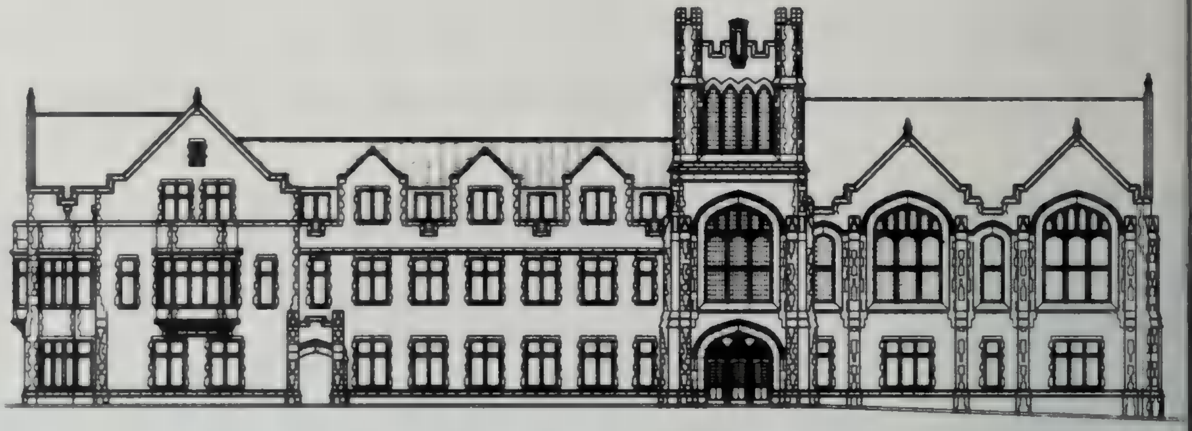
Apple

HARTMAN-COX ARCHITECTS

Washington DC
Mary Kay Lanzillotta, AIA

Integrating the Old with the New


Washington University Law School

Hartman-Cox Architects is a firm known for contextual design work. They've become masters at blending old architectural styles with new building methods. And as you might expect, this philosophy has carried over to their practice, where they've struck a happy medium between the use of old and new computer-based architectural tools.

"We initially brought computers into our practice to help write specifications, not to produce drawings or graphics," says Mary Kay Lanzillotta, a Hartman-Cox architect. "But over time, we incrementally experimented with computers on a project by project basis-after all, none of us relished the thought of drawing 500 Gothic Revival windows by hand. Now that more clients require AutoCAD drawings, we've made computers an integral part of our practice."

> *"With Macintosh computers, we never have to send anyone to training classes."*

Lanzillotta, who specializes in historic preservation, is currently the project architect for the preservation of the Lincoln and the Jefferson Memorials. During the next three to four years, she will overseeing this process.

Another good example of how computers are used in their practice is the Washington University Law School and Library project, which is currently under construction in St. Louis. Hartman-Cox architects Warren Cox and Lee Becker spent the first six months of the project analyzing the needs of the law school staff. They worked on optimizing space requirements and locations of faculty offices, library facilities, mock courtrooms, and mailrooms. Preliminary schematics were prepared by hand, so teams of people could quickly rearrange rooms with traditional cut-and-paste techniques. The final design and development of the building was completed using AutoCAD on Macintosh computers.

Hartman-Cox often combines computer-aided design and hand-rendering in their presentation drawings. Sometimes they hand-render over computer-generated wireframe drawings. And one architect has developed a random hatching pattern that he "pours" into their computer-based renderings to simulate hand-textured granite.

There's one other thing that Lanzillotta likes about Macintosh computers: "With Macintosh computers, we never have to send anyone to training classes."

Hardware: 3-Quadras, Macintosh IIci, Macintosh IIcx, HP 600 Plotter
Software: Microsoft Word, Microsoft Excel, Quicken, Claris CAD, AutoCAD

program the paths and then "play back" the trip, like a video) With QuickTime VR the computer user can choose, when viewing the image, whether they want to look to the left or right, up, down, stop, or move ahead. It is a "navigable" image.

In my opinion, this one software application has the ability to transform the practice of architecture and is the single most important advance in computer software for use in the building industry. Look for examples and applications of this exciting new technology to be coming out of the lab and into general usage very soon.

A QUICKTAKE CAMERA
You can use the QuickTake 150 to take a digital photograph of a site, then quickly integrate the image into proposals or renderings.

Choosing the Best Tool for the Job

Designers w[illegible] Macintosh computers spend less on training and support, [illegible]earch firms publish data that substantiate this claim. The Macintosh computer's resume includes studies such as these:

PALACE OF FINE ARTS
QuickTime VR software will allow you to view real and virtual spaces as well as computer generated or photographed objects.

- Easiest to learn and use. The Mac OS is nearly twice as efficient to learn and use as the Windows operating system. (Arthur D. Little, Inc., 1994)
- Less expensive to own. The five year cost of owning a Macintosh with System 7 is nearly $6,500 less than a comparable Windows-based computer. (Gartner Group of Stamford, Connecticut, May 1993)
- Highest customer satisfaction. The PowerBook computer ranked highest in customer satisfaction among notebook computer business users. (J.D. Powers, 1994 Notebook Computer End-User Satisfaction Study)

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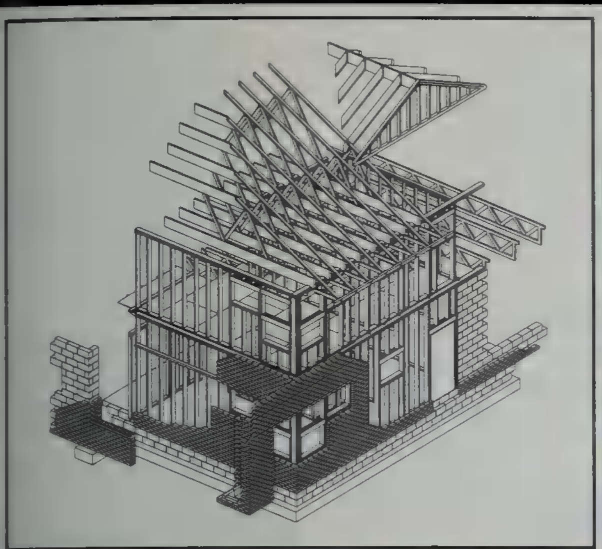

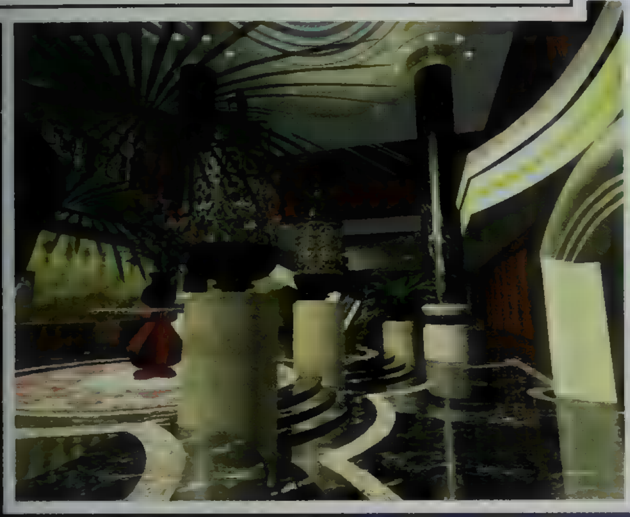

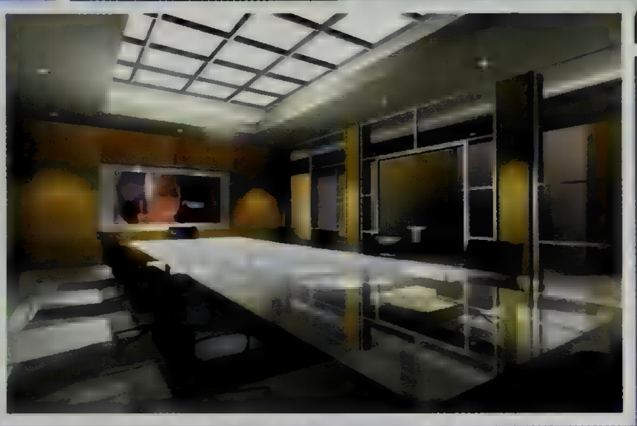

All models created with **form•Z**. *Below:* Le Corbusier's Ronchamp by Mark Niemi, auto•des•sys, Inc., rendered with **form•Z**. *Above, clockwise from top left:* Model by Sean Thompson, Heather Cross, and Charlene Tu, University of Cincinnati; Building by Sullivan Gray Bruck Architects, model by Marty Clayton, Electric Pictures, Columbus, OH, rendered with InfiniD; Conference Room by Hae Young Yoon, MR Y Associates, New York, NY, rendered with ElectricImage; Oral-B Corporate Headquarters by John Marx, DES Architects/Engineers, Redwood City, CA, rendered with Raydream Designer; Hyatt Hong Kong, model by Teresa Williams, See³, Culver City, CA, rendered with ElectricImage.

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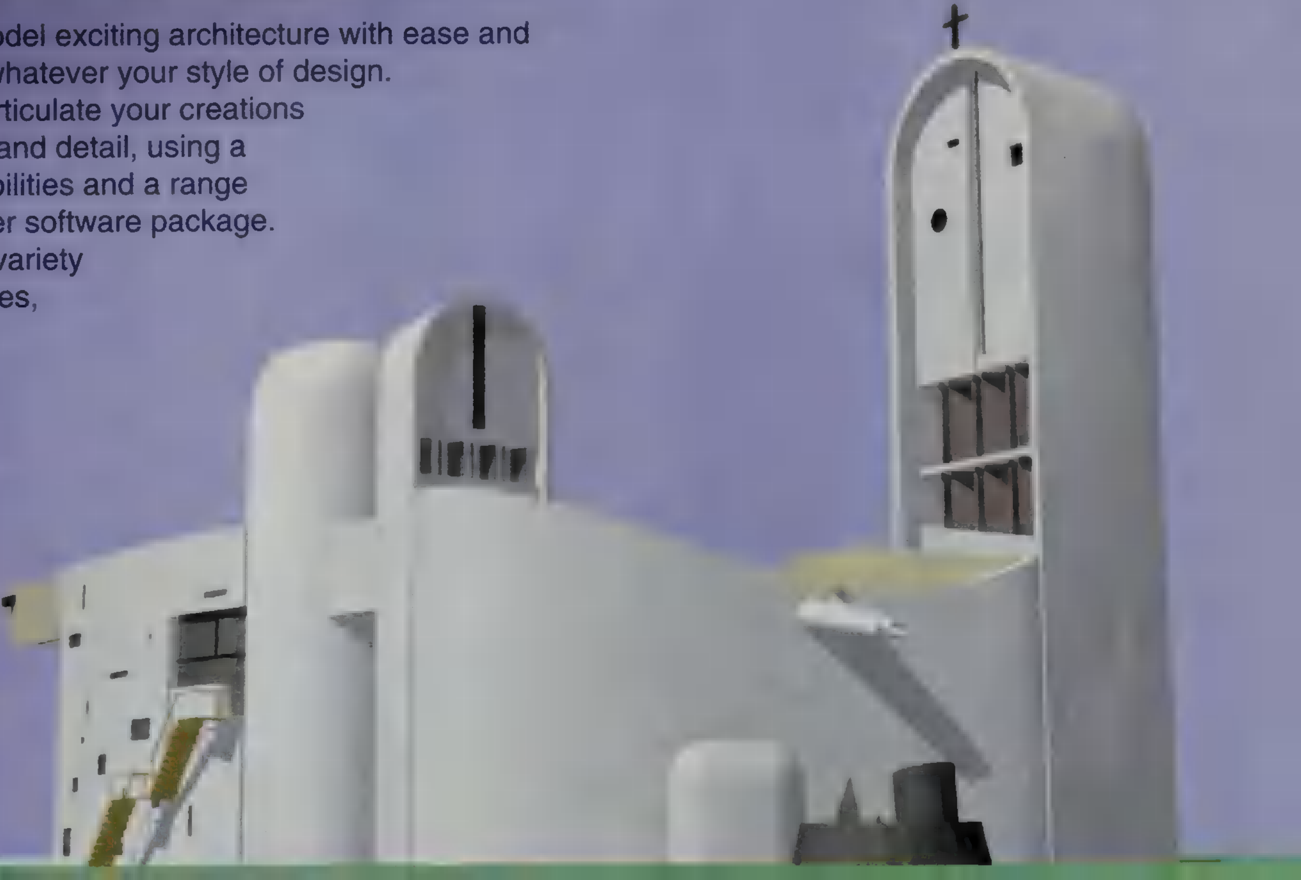
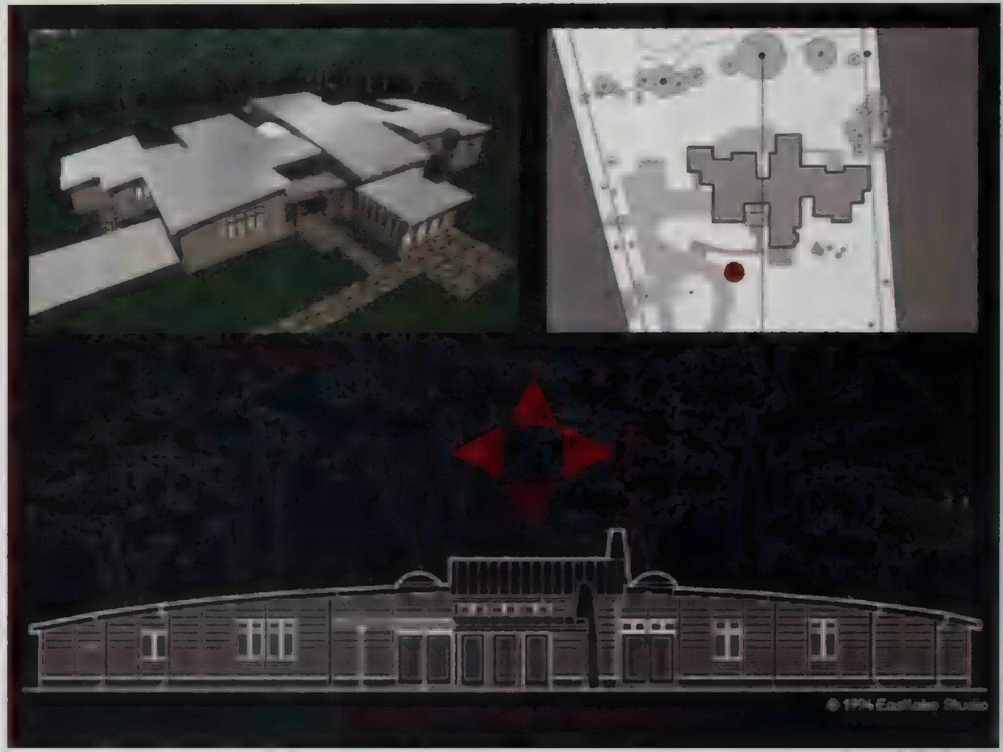


EASTLAKE STUDIO

Chicago, Illinois
David Johnson

Broadening Their Practice Through Computers



EastLake Studios created this 3-D walk-through for an art gallery's "New Chicago Villa" multimedia kiosk.

When David Johnson and his partners decided to start their own architectural firm in 1987, they realized that breaking away from an established firm presented them with an opportunity to use computers in an innovative way. So they began drafting a plan for a different kind of architectural practice.

"We use Macintosh computers for everything, and many office visitors notice that we have very little paper lying around compared to traditional architectural offices," says Johnson. "Drawings, rolodexes, in-out boards, time sheets, correspondence, and financial reports are all maintained on our computers. And this information is networked so that employees can access just about anything from their desktop computers."

Johnson feels that their emphasis on information accessibility has had other beneficial side-affects: "Besides making our architects more productive, this sharing of information flattens hierarchies. Every architect is granted free reign to borrow design details, budget spreadsheets, or schedules from other projects. There's no waiting around for another architect to return from a site visit or for a busy partner to search through file cabinets."

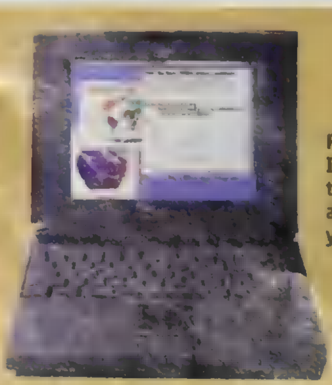
Moreover, Johnson thinks that computer technology provides architects with an opportunity to broaden their practice. For example, as a service to their corporate customers, his firm develops custom facilities management programs in FileMaker Pro. And last year a local art gallery hired him to create a multimedia kiosk presentation at a "New Chicago Villa" exhibit. It featured one of their custom home designs and provided the firm with great publicity.

> *"Among clients, our innovative use of computers helps position us as forward thinkers."*

Eastlake Studios also uses online services to help them win new business. They search Internet databases to learn more about prospective clients. And very soon, they'll be posting an electronic version of their portfolio to a custom Web page (the Internet's version of a retail store front).

"All of these computer-aided opportunities provide us with additional revenue streams and a competitive advantage, says Johnson. "Among clients, our innovative use of computers helps position us as forward thinkers. And because corporate clients have seen how well computers work for us, some have hired us to make recommendations on computer use in their own companies."

Hardware: 2-Power Macintoshes, 3-Quadras, 2-Macintosh fxs, 2-Macintosh IIcis, PowerBook
Software: PowerDraw, MacDraft, form • Z, ModelShop, Claris FileMaker Pro, Microsoft Excel, Adobe Pagemaker, Macromedia Director



POWERBOOK 540C
If you have to spend a lot of time at job sites or traveling, a PowerBook computer can be your office away from home.

Compatibility For Fitting Into Any Environment

One factor that's helping the Macintosh's increasing acceptance in the architecture community is the widespread availability of compatibility aids —which make it easier for mixed-system offices to exist in harmony. (In fact, none of the architects whom we interviewed for this article has major problems converting Macintosh files to DOS/Windows formats.) Here are the levels of compatibility that users can expect with Macintosh computers today.

- Many Power Macintosh configurations are DOS/Windows-compatible, enabling users to run the hundreds of off-the-shelf MS-DOS and Windows programs at 486performance levels.
- With a Macintosh you can share data easily with all your colleagues and clients, whether they're using systems running Macintosh, MS-DOS, Windows, VMS, or UNIXr operating systems
- All Apple floppy drives can format, read from, and write to 3.5-inch MS-DOS, OS/2, and Windows floppy disks.
- Most Macintosh software includes conversion utilities that let you use popular computer-aided design and text files

continued on page A22

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UNIVERSITY OF MINNESOTA SCHOOL OF ARCHITECTURE

Minneapolis, Minnesota
Lee Anderson, Professor

A Glimpse Into the Future

The University of Minnesota has built the ultimate playground for its architecture students—it's called the Microcomputer Lab. With 34 Macintosh computers, cutting-edge design software, video production equipment, and a large-screen video projector, future architects at this school experiment with computer tools and techniques that will someday benefit their employers and the architecture professional as a whole.

Lee Anderson, Architecture Professor and Director of the University's Computer Aided Design Center, is the driving force behind this school's emphasis on computers. He says, "Architecture is still rooted in the aesthetics and methods of a previous time—static drawings and presentations," says Anderson. "Our classes enable students to experiment with computer tools that have been used artistically for years in cinema and video."

> *"The Macintosh provides us with good value and a technology that won't be obsolete in a few years."*

Here are just a few technologies that students in Anderson's classes get to "play" with.

- At the University's Artificial Reality Lab, students wear "virtual reality" goggles to view and manipulate designs created in upFRONT's Swivel 3D software.
- Using Working Model by Knowledge Revolution, students can design structures and study the effects of different materials and gravity over time.
- Students have access to the latest animation and design software—for example, Premiere, Photoshop, Canvas, and Alias Sketch!—so they can learn new skills and techniques in architectural design.

Anderson thinks a lot about how computer technology will ultimately change the practice of architecture. He believes the impact of computers in architecture goes beyond just creating "pretty pictures". In his own words, "Computers will help architects more effectively manage the large amounts of information that are needed to design structures. They will help architects better analyze materials and the energy efficiency of buildings. And new communication technologies will increase the frequency of "just in time" architectural teams—in other words, ad hoc design teams that include architect-specialists brought in for special projects."

When asked why their school chose to standardize on Macintosh computers, Anderson replied, "The Macintosh provides us with good value and a technology that won't be obsolete in a few years. These computers are also the easiest to set up, network, share file and teach with."

A pool, tower, & dungeon created by students at the University of Minnesota.

Hardware: 34 Macintosh computers, plotters laser printers, scanners, HP PaintWriter, and network connections to a Cray Supercomputer and the Campus library search system and electronic mail
Software: Premiere, upFRONT, Photoshop, Canvas, Swivel 3D, Alias Sketch!, Adobe Premiere, Working Model

[illegible] Macintosh, you just plug in the power cord, and your multimedia system is ready to run—all Macintoshes are multimedia ready right out of the box! Unlike many other systems, you don't have to purchase extra memory, sound cards, networking software, or speakers. And if you want to connect a video camera or VCR to your computer, you can purchase an "AV" version of Power Macintosh. These computers come with additional multimedia features such as video in/out, telephone integration [illegible] speech recognition.

You can even [illegible] Macintosh computers into complex networked [illegible] that use Token-Ring, Ethernet, NFS, and TCP/IP p[illegible] of connectivity and compatibility makes it pos[illegible] drawings and data stored on a mainfram[illegible] these [illegible] then store them on servers, without leaving your desk. And all of this "plug and play" networking makes it easier for team members to collaborate, increasing the productivity and efficiency of your firm.

NEWTON
Many architects have begun using Newton MessagePads to manage client information, save sketches, and send faxes while they're away from the office.

continued on page A24

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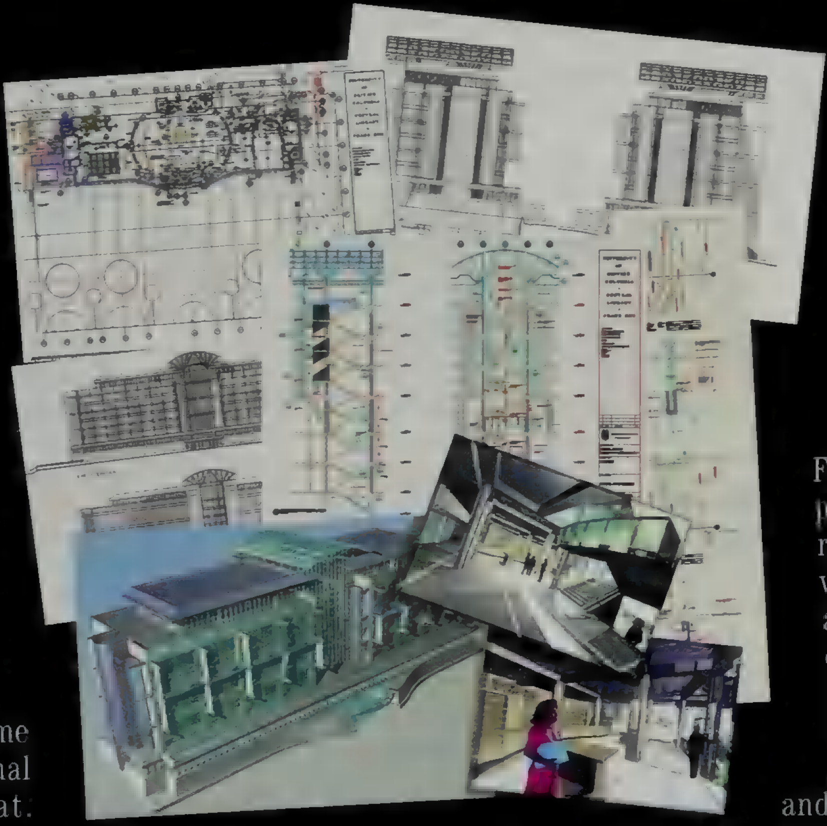
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TULLOCH CONSTRUCTION

Oakland, California

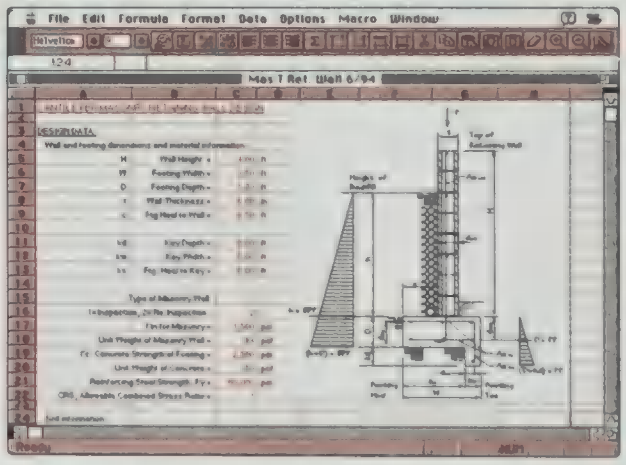
Edward Ong, PE, ASCE, ACI

Building a Structural Analysis Toolbox

"One of the reasons I like using Macintosh computers in our design and build construction firm is that they eliminate repetitious tasks and help us get things done faster. After we began using Macintosh computers, our overall design time was cut in half," says Edward Ong, the chief structural engineer at Tulloch Construction.

This dramatic time savings is largely a result of the extensive collection of computer-based design details that the firm has developed. In many of the warehouses and office buildings that Tulloch Construction develops, building elements such as roof, foundation, and wall connection details, as well as handicapped-access standards, can be reused in future designs. During the firm's slow times, designers work on modularizing these details so they can be dropped into ClarisCAD-based drawings when the need arises.

> *"After we began using Macintosh computers, our overall design time was cut in half."*

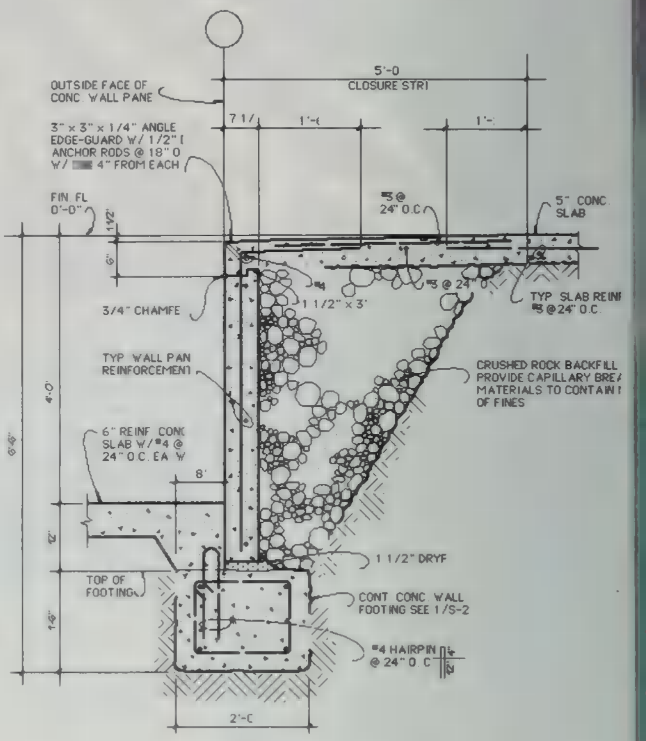


Ong saves time on structural analysis by creatively working with a variety of programs. Over the years, he's created a virtual "toolbox" of Excel-based structural calculation templates that help him analyze components like tilt-up walls, floor beams, and retaining walls. In addition, he uses FRAMEMac for analyzing two-dimensional structural elements and Multiframe3D for performing three-dimensional loading calculations.

One of Ong's favorite features of FRAMEMac is the Rectangular Mesh Generator, a tool for creating multi-story and multi-bay structures. Using this tool, a high-rise model with regular story heights and bay widths can be created graphically with the mouse in minutes, without having to type in nodal points.

"Both of these programs allow us to visually see the loads being imposed on beams, trusses, structures and nodes," says Ong. "We input values graphically on the screen, not as a list of numbers. Not only does this save us a tedious typing job, but just by looking at load diagrams, we can instantly see if we've made any obvious errors."

Recently, Ong's toolbox of Macintosh structural and design tools was put to the test. With a building department deadline looming and the drafting staff working to capacity, Ong had to step in and create working drawings for a project. He surprised himself with the outcome: Using ClarisCAD and his Macintosh, he completed five pages of construction drawings, complete with structural analysis, in just a weekend.


5'-0
CLOSURE STRI
OUTSIDE FACE OF CONC. WALL PANE
3" x 3" x 1/4" ANGLE EDGE-GUARD W/ 1/2" [ANCHOR RODS @ 18" O W/ 4" FROM EACH
7 1/
1'-(
1'-
FIN. FL 0'-0"
1 1/2
#5 @ 24" O.C
5" CONC. SLAB
6"
#4
1 1/2" x 3'
#3 @ 24" O
TYP. SLAB REINF #3 @ 24" O.C.
3/4" CHAMFE
TYP. WALL PAN REINFORCEMENT
CRUSHED ROCK BACKFILL PROVIDE CAPILLARY BRE MATERIALS TO CONTAIN OF FINES
4'-0
6'-6"
6" REINF. CONC SLAB W/ #4 @ 24" O.C. EA. W
8'
12
1 1/2" DRYF
TOP OF FOOTING
CONT. CONC. WALL FOOTING SEE 1/S-2
1'-6"
#4 HAIRPIN @ 24" O.C
2'-C

Ong uses Excel-based calculation templates to analyze structural elements like this retaining wall and truck dock door sill.

Hardware: 3-Macintosh LCIIs, Macintosh IIci, Macintosh fx, 2-Apple LaserWriters, HP DraftPro plotter
Software: ClarisCAD, Excel, FRAMEMac, Multiframe3D

---

created on other computers. In addition, translator programs like DataViz's MacLink Plus/PC offer over 700 different translation options. Specialized graphics translators such as Forthought's SNAP! Translator, Engineered Software's PowerDraw Translator, and Kandu Software's CADMover easily convert industry standards like CALS, IGES, and AutoCAD's DXF to Macintosh-readable formats.

- For users with existing investments in UNIX RISC-based hardware, Macintosh Application Environment (MAE) enables Macintosh applications to run on top of Sun, HP, and other popular workstations.
- An upcoming software development framework, OpenDoc, will, over time, enable Macintosh users to mix and match their favorite applications. For example, in the future, you'll be able to drop a spreadsheet or a rendering directly into a CAD drawing [illegible]her of these in place.

So even with many of your clients demanding final output in non-Macintosh formats, all these compatibility aids let you choose the easiest to use, most powerful computer for the job you need to get done—architecture.

Painless Networking and Communication

One of the hidden benefits of a Macintosh is its painless networking and communication facilities. The "plug and play" AppleTalk networking capabilities built into every Apple computer enable you to network your Macintosh simply by plugging it into a printer or another Macintosh with an inexpensive cable. No additional software or hardware is needed. And with AppleTalk you can start small, then easily expand your network as your organization grows. Another hidden benefit is the bundle of built-in extras that comes with each system.

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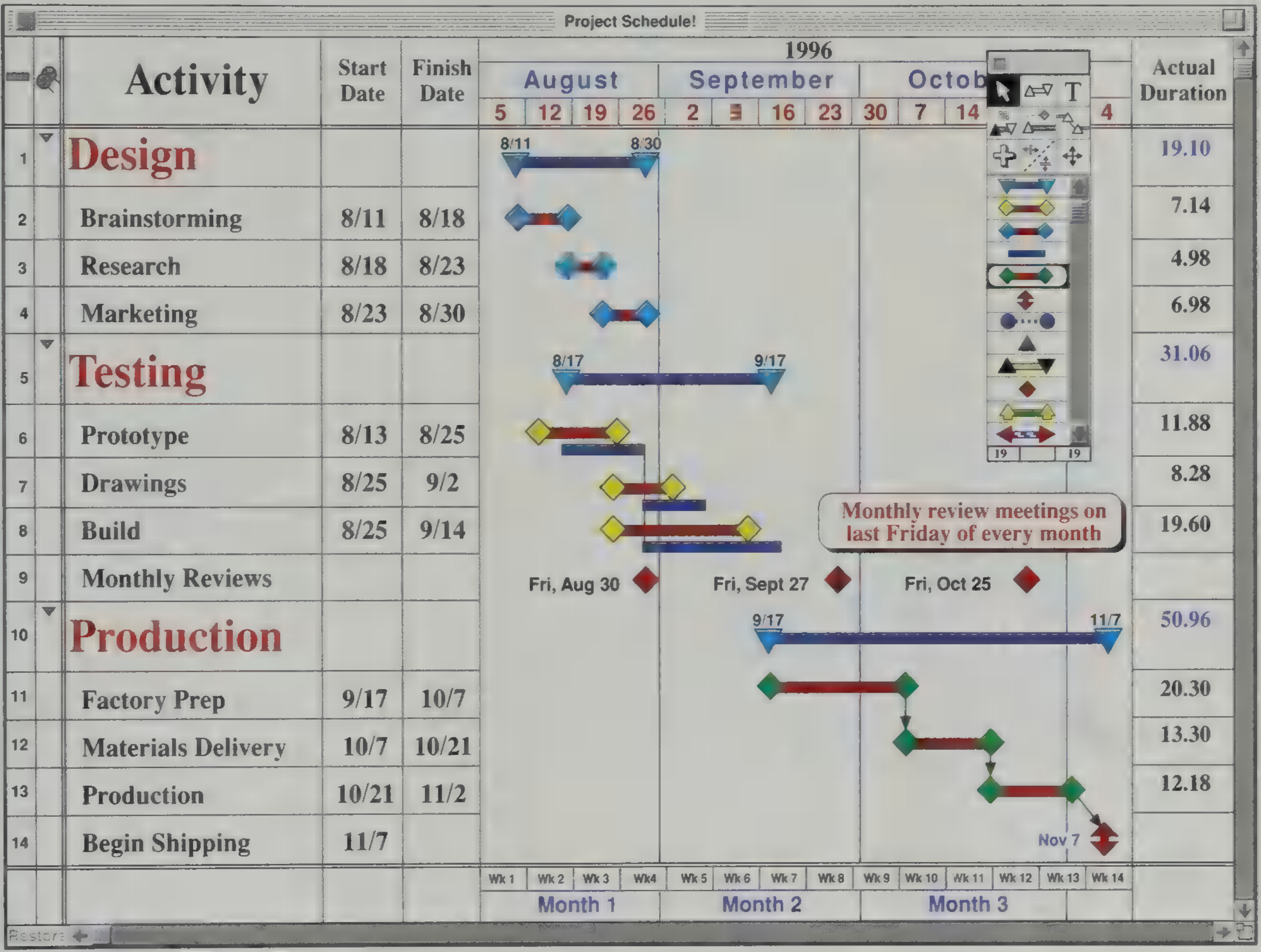

	Activity	Start Date	Finish Date	Actual Duration
1	Design			19.10
2	Brainstorming	8/11	8/18	7.14
3	Research	8/18	8/23	4.98
4	Marketing	8/23	8/30	6.98
5	Testing			31.06
6	Prototype	8/13	8/25	11.88
7	Drawings	8/25	9/2	8.28
8	Build	8/25	9/14	19.60
9	Monthly Reviews			
10	Production			50.96
11	Factory Prep	9/17	10/7	20.30
12	Materials Delivery	10/7	10/21	13.30
13	Production	10/21	11/2	12.18
14	Begin Shipping	11/7		

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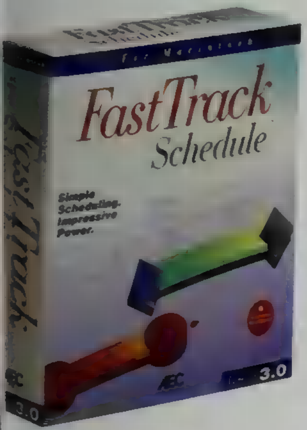

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Price/Performance

For those of you holding off on a big computer investment because you're waiting for computer prices to drop, this is the time to buy. RISC-based PowerPC microprocessors have been shipping for more than a year now. Computers have reached a balance between affordability and power—providing you with enough desktop power to run heavy-duty 3-D design and modeling software.

The fact that this power is housed within an affordable desktop computer means that you'll no longer need to set up expensive minicomputers running complex UNIX-based CAD software. Your computer will be able to do double duty, and that's one less computer to learn and support.

The Power Macintosh offers you the best performance today, and according to industry analysts, Apple's move to the PowerPC microprocessor will keep Apple in front of the performance curve for the foreseeable future. This, combined with the fact that Apple has provided its customers with a seamless upgrade path for the last eleven years, is the best argument for the long term viability of this platform.

POWER MACINTOSH COMPUTER A January 1995 study by Ingram Laboratories found that Apple's newest Power Macintosh systems outperformed Windows-based computers that had equivalent clock-speed Pentium processors by an average of 38 percent.

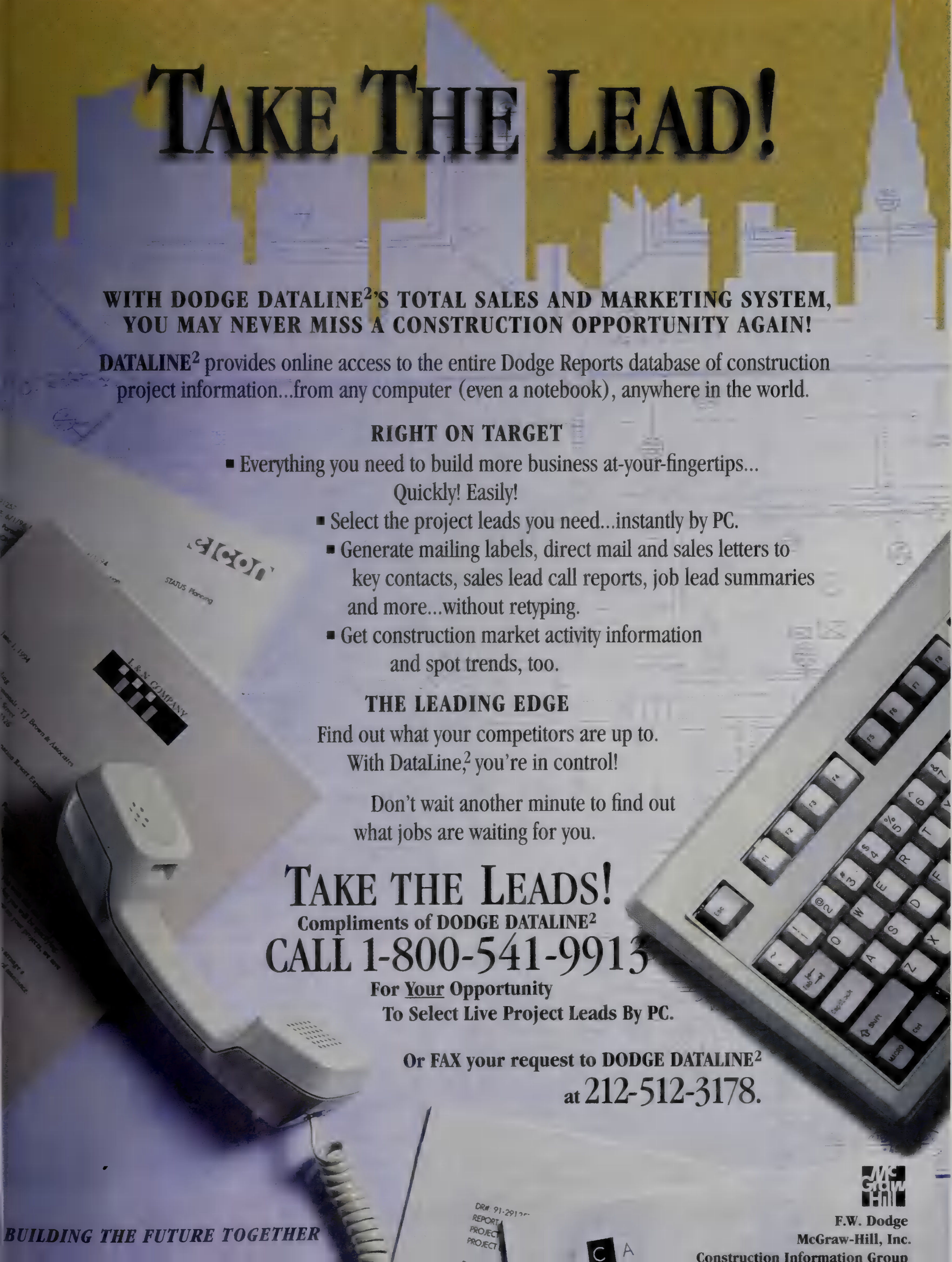
A Blueprint for the Future

Computers will continue to change the practice of architecture in ways that we can't even imagine today. But it's worthwhile to take what we know about emerging technologies to benefit us in our own practices today.

Here's a scenario of how we believe architects will be using computers in the near future.

> **Architects will meet with clients, either in person or via a Macintosh-based video conferencing system, with a light-weight portable computer in hand. Portfolios will be stored on computers, and architects will show their [illegible], taking clients on "virtual" walks through their designs.**
>
> **At the start of a project, an architect will open a new project file and type in important client information. Intelligent software agents will automatically extract and save client address information in an electronic rolodex. Time spent with a client will be automatically logged in your invoicing program. All other client documentation—client contracts, drawings, and bills of materials—will all be seamlessly accessible from this file.**
>
> **Back at the office, an architect will receive a computer-based 3-D topographical map and digital photograph of the client's building site from a surveyor. These images will be dropped into a new design file, then on top of these backdrops, the architect will start developing design concepts, based on the architectural program requirements organized in a computer database, roughing out designs in basic 3-D forms. The file will also contain data on city building codes and will automatically inform the designer of a height restriction or other regulations.**
>
> **Once a preliminary design concept is developed, the architect can apply various surface materials to the structure and drop in generic or specific doors and windows from a CD-ROM-based building materials catalog. At this point the architect can present the preliminary design to the clients, showing them preliminary plans, elevations, and walk-through. During this presentation modifications can be made and "what if" scenarios can be explored and then decisions on how to proceed with the project can be made, based on the immediate feedback of those involved in the presentation — which might include the contractor, engineers, clients, and users.**
>
> **Next, the design will be e-mailed to the structural engineer. The structural engineer will use intelligent programs to assist in the framing, joist selection, and dimensioning of the structure. The architect then reviews the design and makes further changes and design coordination. With the basic design in place, the architect runs year-long climate and geographical simulations, providing them with valuable information on energy usage, structural integrity and lighting. Final details, like cabinets and fixtures, are cut and pasted into the new building available from a building products resource CD-ROM catalog, the architect's custom component library, or developed in a 3-D program specifcally for the project.**
>
> **The architect can then take the client on a walk through the final design on a computer. At this presentation, the architect will still have the ability to accommodate changes such as paint colors, window locations, and fixtures. And after reviewing every detail in the walk-through, the client will be able to approve the design on the spot.**
>
> **This technology will also extend itself into the building construction phase and even to facilites management, as all members of the building industry make use of the power of computers.**

Though this scenario may seem too good to be true, you'll probably see these software solutions sooner then you think. The technologies needed to perform these operations exist today. All that's needed is the compatibility "glue," Apple's OpenDoc (coming soon), that will enable these individual applications to work seamlessly together.



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The Intangible Benefits of a Computer-Aided Practice

This scenario also illustrates some of the intangible benefits that computers can bring to the architectural profession and the building industry as a whole. Far beyond functioning as drafting aids, computers have the potential to expand the role of architects in the building process. It moves architects from the all-too-frequent perception of "working-drawing providers," to a role where they provide clients with important analysis and preview capabilities, as well as keeping architects efficiently involved in the construction phase. Here are some of the intangible benefits that we think computers will bring to architects.

- *Computers foster experimentation and innovation.* Once a graphite line is etched on vellum, there's a certain resistance to changing those lines. Computers enable you to experiment with not only lines, but form, color, and light. The playfulness of computers and new 3-D preview capabilities will lead to more innovative solutions.
- *Computers enable you to analyze your designs more thoroughly.* There are a host of software design programs available that help you analyze structures, lighting, and different views, all of which help you create better designs.
- *Computers let you communicate with clients through a medium they understand.* Very few clients can read blueprints or get a feeling of space and volume from a model. The computer enables you to communicate with clients in a television-like medium that almost everyone is familiar with. This medium helps you avoid design surprises, thus improving client satisfaction.
- *Computers enable you to be more efficent.* Because a computer like the Macintosh can help you be more efficient in the all of the tasks of running your business, you can spend more time on the aspects of your profession — or your life, that you want to spend your time performing.

As computer technology evolves, so will the profession of architecture. And just as you hire architects who can readily adapt to this constant change, you need to ally yourself with a computer company that will do the same. Apple Computer has a long history of innovation without customer disruption. Its products are visual, versatile, and easy to use. And its Macintosh computers provide your firm with the best value for the money. With these systems, you'll spend less time worrying about networking, compatibility, and upgradability, and more time getting your work done.

The Computer Aided Practitioner Checklist

Almost every function in your office — whether you're an architect, engineer, or contractor — can benefit from computerization. But computerizing everything at once can be daunting, from both a training and financial perspective. It just can't happen overnight.

So to help you become a skilled computer-aided practitioner, we've compiled a checklist of logical steps that you can take to incrementally integrate computer technologies into your practice. Review this "road map" to see where you are in the process and to figure out which skills to learn next. And don't hesitate to seek advice from other architects who are ahead of you on the learning curve.

Beginning Computer Users

If you're new to computers, the best place to get advice on computers and software is to talk to other architect computer users at your

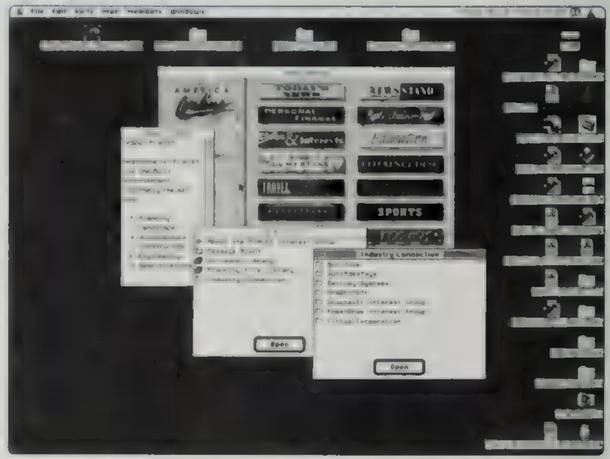
Architecture Online

Here's a simple way to build closer relationships with clients, find new business, and reduce shipping expenses—join an online service. For less than it costs to send one overnight letter a month, you can subscribe to America Online, Compuserve, eWorld, or Prodigy. And with a Macintosh, setting up these services takes no more then ten minutes.

During the interviews for this article, we found that many architects are using online services to improve their firms' bottom line. Jambhekar Strauss searches the Commerce Business Daily on the Internet to search for new government projects to bid on. At Aldo Rossi's studio, Morris Adjmi uses his Newton MessagePad to send and receive email and faxes while he's traveling to and from Italy and Japan. And Eastlake Studio is going to market their design services by posting an electronic portfolio online.

Here are just a few of the benefits to connecting your firm to the information super highway:

- *Saves time. Using email eliminates the need for addressing a letter, addressing an envelop, putting on a stamp, waiting for the mail to be picked up, and then waiting for it to be delivered.*
- *Builds closer client relationships. The convenience and spontaneity of e-mail communication helps you build rapport and loyalty with clients.*
- *Reduces shipping costs. By attaching correspondence, contracts, and drawings to e-mail messages, you can save time and hundreds of dollars a year on postage and express-mail changes.*
- *Lets you get work done on the road. Many architects spend a great deal of time visiting building sites or traveling. Using a PowerBook or NewtonMessagePad with wireless communication, you can send and receive information from virtually anywhere.*
- *Helps you find new clients. By searching online bulletin boards and the Internet (all the online services mentioned have gateways for accessing this vast repository of information), you can look for companies looking to expand their facilities, government bids, and so on. You can also market your services by posting information about your firm online.*
- *Gets your technical questions answered. Most software companies have technical support boards and e-mail addresses that you can use to get tips and technical advice on the products that you use.*



- *Strengthens the architectural community. Try searching architecture bulletin boards and online directories for member profiles listing "architecture." It's a great way to meet other architects from all over the world. You can use this avenue of communication to network, get advice on software products, and discuss issues related to the profession.*

Here's a snapshot of the resources available on one of these services, America Online (AOL). AOL's architecture area for architects, planners, and landscape architects is called P.L.A.C.E.S. In this area you can access a Message Board, a Software Library Section, a Planning File Library, and an Industry Connection folder. In addition, this area sponsors a weekly "live" forum where you can discuss relevant topics with other architects. (P.L.A.C.E.S. convenes every Sunday night at 10 PM ET in the Macintosh Graphics Conference Hall. It's accessible via the keyword MGR.)

Trying these any of these online services is a no risk proposition, since most of the services offer a free trial period. So, if you don't already have one, get yourself a modem, order a free service start-up disk, and get wired.

ARCHITECTURAL RECORD

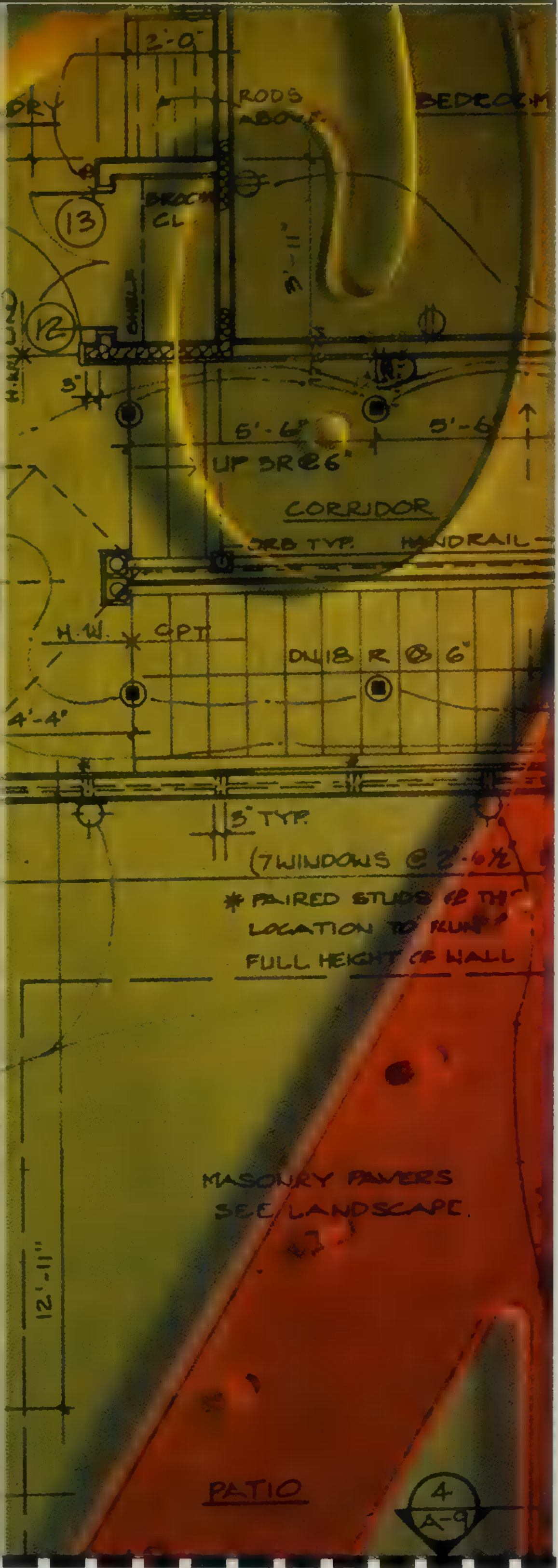
The Record of Architectural Achievement Worldwide

From the economy to changes in business formation and evolving perceptions of the value of professional practice....we know this is a uniquely challenging time to be an active, practicing architect. That's why successful building owners, architects, engineers and other design professionals rely on ARCHITECTURAL RECORD to deliver the best in architectural design, the latest in professional practice, and the most up-to-date technology and product information.

ARCHITECTURAL RECORD consistently presents readers with the best in worldwide design. Every monthly issue features a different Building Types Study (now numbering more than 725) which is considered an industry benchmark, regularly updating readers on evolving trends in structures ranging from schools to stores. Even floor plans are typically redrawn for easier comprehension. ARCHITECTURAL RECORD's staff of writers and eminent contributors not only explain projects, they bring a critical eye to developing trends to help you come up with the optimal solution to the design challenges facing you and your firm in today's competitive environment. The Profession, a department launched in 1994 and published each issue, provides insights and solutions to the current challenges facing architects in design, building construction and business practice.

Special Issues include: RECORD HOUSES, which for 40 years has documented the most innovative housing designs. Commercial, residential and institutional designs have featured prominently in the annual RECORD INTERIORS issue. The ARCHITECTURAL RECORD LIGHTING quarterly adds specialty coverage to a topic of growing interest to design professionals. The annual DESKTOP DIRECTORY, introduced in 1995, brings product information to the architectís fingertips in a form that's convenient and easy to use.

ARCHITECTURAL RECORD offers the most consistent and authoritative reviews of the computer software and hardware being used today by successful architects and also explores tomorrow's options so you can make intelligent buying decisions. Don't miss the Apple Computer special advertising section in this issue. And be sure to check out the winners of ARCHITECTURAL RECORD's Second Annual Computer Delineation Award - a fascinating study of innovative design solutions - also in this issue.



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Please Answer the follow Questions, so we may better serve you!

1. ARE YOU A REGISTERED ARCHITECT?
☐ YES ☐ NO

2. ARE YOU AN ENGINEER?
☐ YES ☐ NO

3. IN WHAT TYPE OF FIRM DO YOU WORK?
- ☐ (10) Architectural, Arch/Engr.
- ☐ (20) Engineering
- ☐ (60) Commercial/Industrial/Institutional
- ☐ (51) Government Agency
- ☐ (41) Building or General Contractor
- ☐ (32) Interior Design
- ☐ (33) Landscape
- ☐ (70) Manufacturing
- ☐ (80) Public Library, Society, Trade Assn.
- ☐ Other__________________
- ☐ Other__________________

4. PLEASE CHECK YOUR PRIMARY JOB FUNCTION (ONE ONLY):
- ☐ (B) Owner/Partner, Corp. Exec., Manager
- ☐ (B) Chief Architect
- ☐ (C) Job Captain, Staff Architect
- ☐ (E) Designer, Planner
- ☐ (G) Draftsperson
- ☐ (C) Specification Writer
- ☐ (F) Interior Designer (incl'd Space Planner)
- ☐ (B) Public Administrator
- ☐ (B) Facilities Manager
- ☐ (B) General Contractor, Builder, Developer
- ☐ (A) Librarian
- ☐ (H) Teacher (71)
- ☐ (H) Student (72)

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Mc Graw Hill

local AIA meeting, a Macintosh Users Group, or online. To start, you should look consider taking these steps:

- ☐ Buy a "multimedia-ready" computer (every Macintosh is "multimedia-ready") and printer (consider buying a printer that handles 11x17-sized paper)
- ☐ Learn a word processing program
- ☐ Set up a contact/address database
- ☐ Use a spreadsheet program to create project estimation worksheets
- ☐ Set up a database or accounting program to manage invoicing
- ☐ Learn a simple drawing/CAD program
- ☐ Use a good reprographics service bureau for printing large, color presentations
- ☐ Find a good computer graphics service business or individual to help you with advanced computer modeling and rendering projects and to help you learn new techniques
- ☐ Connect your computer up to a second computer in your office using AppleTalk, the built-in Macintosh network
- ☐ Learn how to share files over the network

TWO MONITOR CONFIGURATION
A Power Macintosh computer can be easily configured with two monitors

With these skills under your belt, you'll be able to reduce the time you have to spend writing letters, proposals, RFPs, and reports. Hopefully this will provide you with some extra time to experiment creating floor plans and elevations on the computer. After you've become familiar with 2D drawing, begin learning 3D techniques. Someone in your firm can also begin building a library of standard details on your computer. Getting networked will really change the way you communicate in the office — from leaving messages to sending a proposal for someone else's review. Many tasks are simplified when an office is networked.

Intermediate Computer User

- ☐ Set-up a more sophisticated accounting software program
- ☐ Learn a project management software program
- ☐ Get a modem for your computer so you can communicate with other computers over telephone lines (many Macintosh computers are shipped with modems)
- ☐ Join an online service with email
- ☐ Set up a very large hard drive so you can handle large graphics files
- ☐ Buy a hard drive that has removable cartridges to enable easier data backups and file transfers
- ☐ Get a large format printer/plotter

[illegible] to the outside world. You can send and [illegible] information on your online service; send files back and forth with other professionals, service bureaus, and clients that are online; and access some parts of the Internet.

Many files can be sent online, but for extremely large files that would take too long to upload and download, you'll benefit from a removable cartridge hard drive. With this capability, you can mail very large files or a large number of files. Talk to clients, consultants, and service bureaus to see what kind of storage cartridges they use.

Power User

- ☐ Upgrade your existing computer with more RAM or buy a new computer with lots of RAM
- ☐ Get one or more 3D CAD, modeling, rendering, visualization applications
- ☐ Buy a color scanner and printer
- ☐ Use image manipulation software like Photoshop for integrating 3D drawings with real site photos
- ☐ Get a QuickTake camera for taking digital site photos
- ☐ Upgrade to an Ethernet network for transfer large files faster

At this point you'll have the capability to print high-quality project proposals and presentation materials in-house. You'll find many uses for the hardware and software that apply specifically to your area of practice — planning reports, feasibility studies, and project management charts to name a few. You may find that your clients begin asking you to do some additional graphics projects for them, as well, once they see what you can do.

For adventuresome architects who want to experiment with multimedia presentation techniques, such as computer walkthroughs, we recommend these steps:

- ☐ Get an audio-visual or "AV" computer (some Macintosh computers come with high-end video hardware and software built in.)
- ☐ Make a video presentation about one of your projects

An "AV" computer will extend your ability to study and present your work. You can create multimedia presentations for in-house reviews, client presentations, and even surprising, new kinds of work. For example, one architectural firm, after presenting an animation of a future building design to their client, was also hired to produce an animation for the client's local TV commercial.

A Final Word

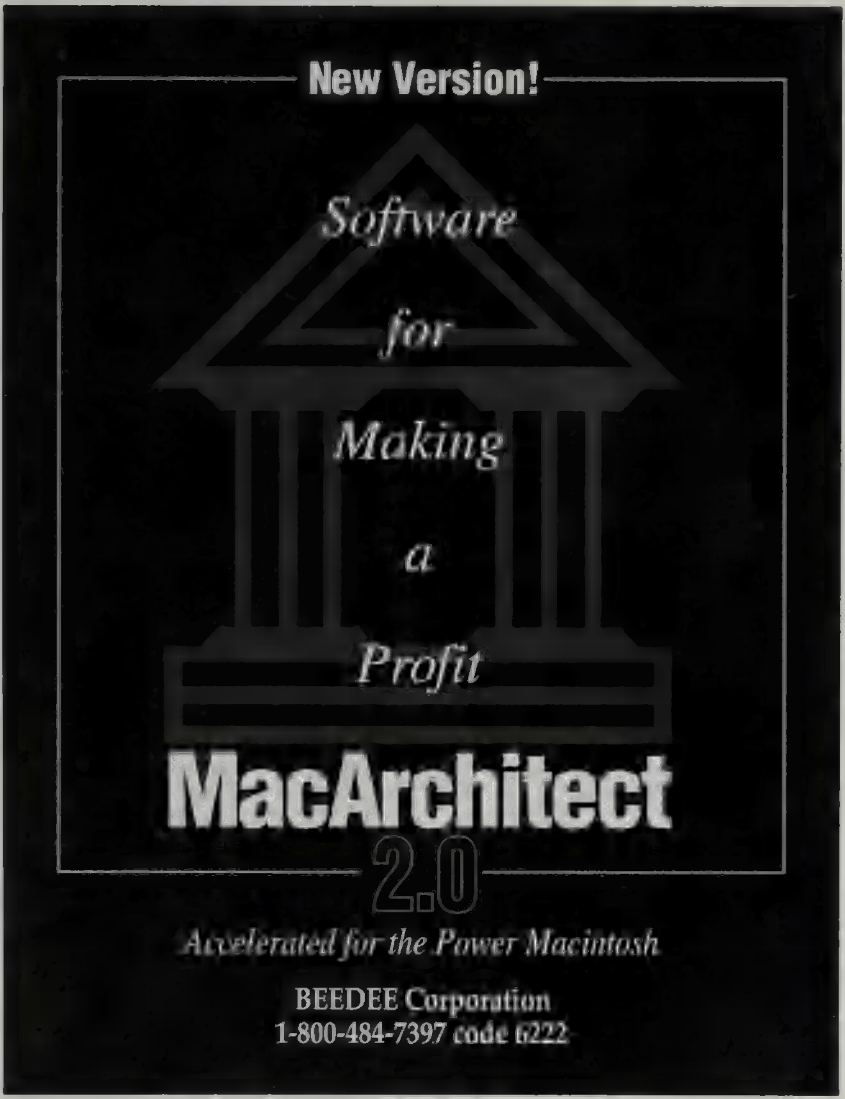
The stories in this article give many examples of how some of the very talented professionals in the building industry are making use of their computers. You can use these experts' advice on hardware and software products, or talk to others. Here's a list of resources to help you continue on your way to your Computer Aided Practice:

MACINTOSH & ARCHITECTURE RESOURCES

Company Name	*Product*	*Telephone*
Adobe Systems Inc.	Pagemaker, Illustrator, Photoshop, Acrobat,Premiere, Dimensions	(415) 961-4400
AEC Software	FastTrack Schedule	(703) 450-1980
Alias Research Inc.	Sketch	(800) 447-2645
Allegiant Technologies	SuperCard	(800) 255-8258
Architectronica	Macintosh Architect consultant	(310) 376-7054
Artifice	Design Workshop	(503) 345-7421
Ashlar Inc.	Vellum	(408) 746-1800
auto • des • sys, Inc.	form • Z	(614) 488-8838
BAGH	Architrion	(514) 273-0522
BEEDEE	MacArchitect	(206) 443-1010
Bentley Systems, Inc.	Microstation	(610) 458-2712
Byte by Byte Corp.	Sculpt 3D	(512) 795-0150
CalComp	Plotters	(602) 948-6540
CalComp, Inc.	Digitizing Tablets	(714) 821-2000
CDG	Macintosh Architect consultant	(602) 629-9752
Claris Corp.	FileMaker Pro	(408) 987-7000
COMPUneering Inc.	FrameMac, MacFrame	(416) 738-4601
DataViz	Translators	(203) 268-0030
DayStar Digital, Inc.	Excelerator cards	(800) 962-2077
DesignCAD, Inc.	DesignCad	(918) 825-4844
Diehl Graphsoft	MiniCAD, Blueprint	(410) 290-5114
Earthware	CE/grading program	(412) 563-1290
Electric Image, Inc.	Electric Image	(818) 577-1627
Encad, Inc.	NovaJet color plotter	(800) 356-2808
Engineered Software Inc.	PowerDraw, PowerCADD	(919) 299-4843
ESRI, Inc.	ArcView	(909) 793-2853
eWorld	Online Service	(800) 775-4556
Farallon Computing, Inc.	Networking System	(510) 814-5000
Forthought, Inc.	Snap!	(803) 878-7484
Fractal Design Corp.	Painter	(408) 688-8800
Frame Technology	FrameMaker	(408) 975-6000
F W Dodge	DataLine	(800) 426-7766
GDT Softworks, Inc.	Printer Drivers	(604) 291-9121
Global Village Communications	Modems	(800) 736-4821
Graphic Magic Inc.	Structural analysis	(408) 464-1949
Graphisoft	ArchiCAD	(800) 344-3468
Graphsoft (see Diehl Graphsoft)		
Great Plains Software	Accounting software	(701) 281-0550
Hewlett-Packard Co.	Plotter, laser printers	(619) 487-4100
IDD, Inc.	McDraft	(510) 680-6818
Insignia Solutions	SoftWindows	(415) 335-7197
Intuit	Quicken	(800) 624-8742
Kandu Software Corp.	CADmover	(703) 532-0213
Kurta Corporation	Digitizing Tablet	(602) 276-5533
Kodak CD Imaging	Kodak Photo CD	(800) 235-6325
Lotus Development Corp.	Notes	(617) 577-8500
MacCoach Consulting	Consulting Services	(415) 323-4901
Macromedia, Inc.	Director	(800) 288-4797
MicroNet Technology, Inc.	Hard disk storage peripherals	(714) 837-6033
Micro Planning Intl.	MicroPlanner	(303) 757-2216
Microsoft Corporation	Software	(206) 882-8080
Microspot USA, Inc.	MacPlotRaster	(408) 253-2000
Novell, Inc.	Netware	(800) 638-9273
Orange Micro, Inc.	PC Card	(714) 779-2772
Palomar Software, Inc.	Plottergeist	(619) 721-7000
Pixar	RenderMan	(510) 236-4000
ProVue	Panorama database	(714) 841-7779
Radius, Inc.	Monitors	(408) 434-1010
Rasterops, Corp.	Monitors	(408) 562-4200
Ray Dream, Inc.	Ray Dream Designer	(800) 846-0111
Reckoning Software, Inc.	Reckoning	(404) 876-8884
Reply	DOS cards	(800) 801-6898
Revelar Corporation	PunchBox, Construction Mac	(801) 485-3291
Samsara	Clerk of the Works	(415) 558-9615
Sketchtech	UpFront	(800) 379-3729
Sony Corp of America	Computer Peripherals	(800) 352-7669
Strata Inc.	Strata 3D	(801) 628-5218
Timeworks, Inc.	Time cards	(708) 559-1300
Traveling Software, Inc.	LapLink Mac III	(206) 483-8088
IMSI	TurboCAD	(800) 833-4674
Turtle Creek Software	MacNail	(607) 589-6858
VIDI	Presenter Professional	(818) 918-8834
Virtus Corporation	Walkthrough	(919) 467-9700
Wacom Technical Corp.	Digital tablet	(206) 750-8882
WordPerfect Corp.	WordPerfect	(801) 225-5000

Apple Computer 800# Directory

Apple Custom Relations:	1-800-776-2333
Apple User Assistance:	1-800-SOS-APPLE (1-800-767-2775)
Apple Product & Support Information:	1-800-505-0171
Apple User Groups:	1-800-538-969 x 500
Apple Training:	1-800-732-3131 x 400
Apple Market Centers:	1-800-365-3690
Macintosh Disability Resources:	1-800-776-2333 or 1-800-833-6223 (TTY)
eWorld:	1-800-775-4556



Circle 19 on inquiry card

"If you're an architect with a Mac, upFRONT is a must-have application."

MacUser Magazine, April 1994

Visualize
Quickly and interactively draw fully shaded objects directly in 3D. Cast accurate shadows. Look at the scene from any point of view.

Animate
Easily create animations and walk-throughs in QuickTime™, PICS or RIB™ format.

Import
Bring 3D DXF models into upFRONT. Import 2D DXF or PICT files to use as templates.

Export
Export TIFF, PICT Bitmap or PICT images to produce design development drawings. Export 3D DXF or RIB™ files to produce renderings.

For more information contact SketchTech at (800) 379-DRAW

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Phone (612) 379-1435 • Fax (612) 331-4962

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Circle 21 on inquiry card

How do I gain a competitive edge?

I work hard.

Think fast.

And hire the right people.

I give them computers.

And networks.

Peripherals.

And software.

I seek solutions.

Without creating new problems.

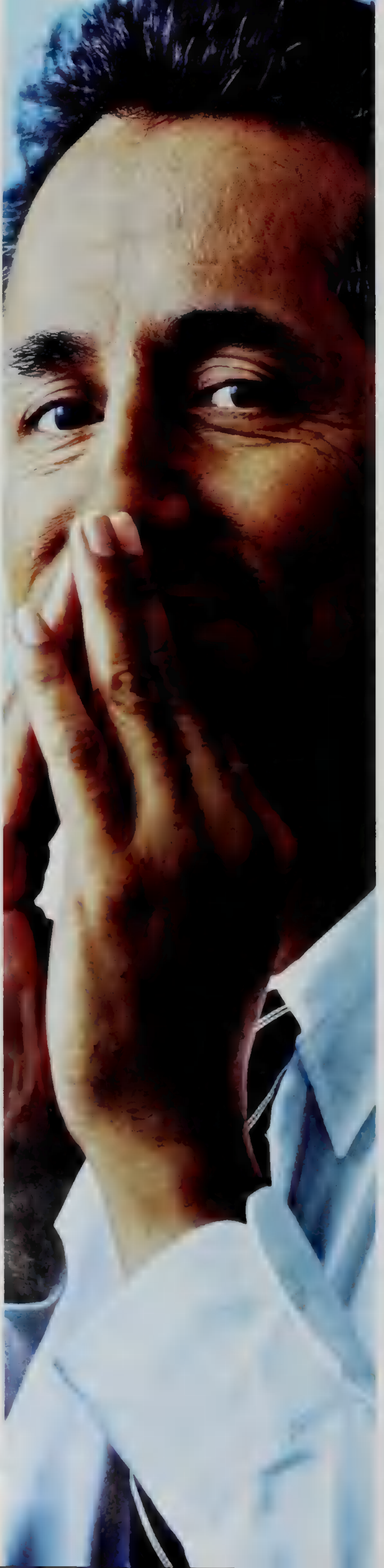
I take time to choose wisely.

And find ways to save time.

I know what to look for.

It looks like this.

Mac OS



2 in a series **The Mac OS Advantage**

The Mac™ OS. It's the operating system that helped make the Macintosh® famous. It helps people do more in less time. In fact, according to an Arthur D. Little study, people using the Mac OS are 44% more productive than those who use Windows.* It's also a great way to get the power of RISC on a desktop PC.

Plug and Play. We invented it. And while many have tried to imitate this perfect union of hardware and software, nobody else actually does it today. Which means nobody else makes it so easy to set up and use all the software, peripherals, accessories and networks you need to help your people be productive.

The real beauty of the Mac OS and Apple® advancements like QuickDraw™ 3D and QuickTime® VR is that people don't even know they're there. What they *do* know is that with a PC running Mac OS, it's actually practical to use multimedia, videoconferencing, 3-D visualization and virtual reality.

Thousands of applications now run under the Mac OS. Which means thousands of applications share the intuitive interface pioneered by Macintosh. In the future, people won't even have to think about individual programs at all. They'll just sit down at their Mac OS desktop and get right to work.

Used to be, the only way to get your hands on the Mac OS was to get your hands on an Apple Macintosh. Today, you'll find it on PCs from Radius, Power Computing and more. The same places, in fact, where you'll find our new logo. For more information, call **800-472-4342, ext. 150**, today. Or contact us via the Internet at http://www.info.apple.com/macos/macosmain.html.

Apple

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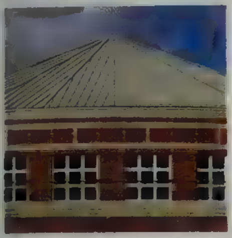
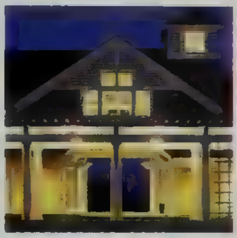



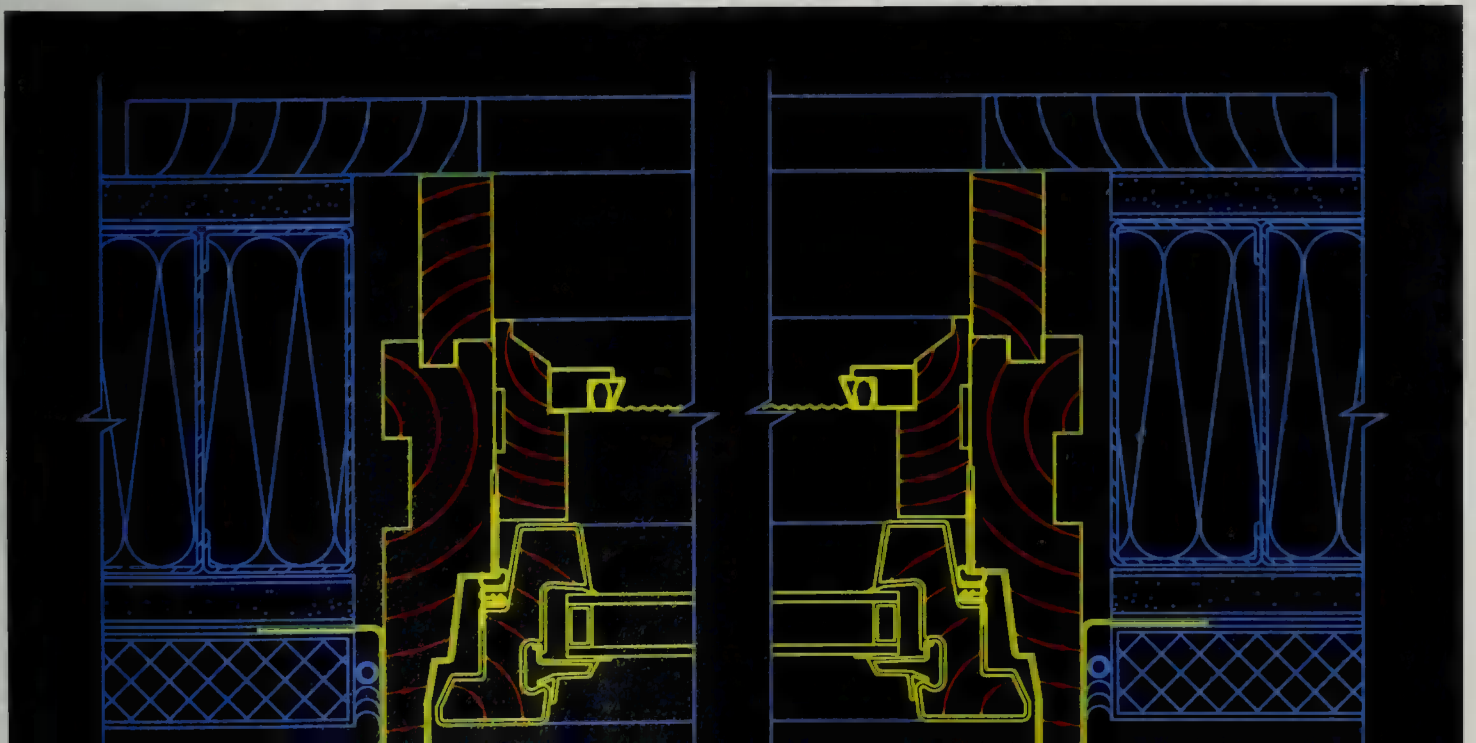
THE DIFFERENCE

ANDERSEN HAS

TO OFFER

ARCHITECTS IS IN

THE DETAILS.



AN ARCHITECT EARNS AN "A" IN HISTORY

STILLWATER AREA HIGH SCHOOL

STILLWATER, MINNESOTA

PROJECT ARCHITECT: TAMMY MA

PROJECT MANAGER: KEN GRABOW

ARMSTRONG, TORSETH, SKOLD AN
RYDEEN INC.

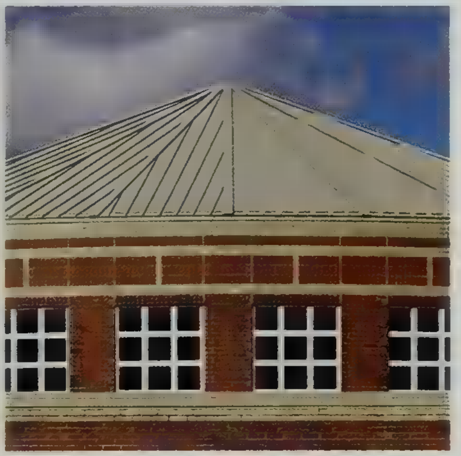
MINNEAPOLIS, MINNESOTA

HELP OF ANDERSEN® WINDOWS.

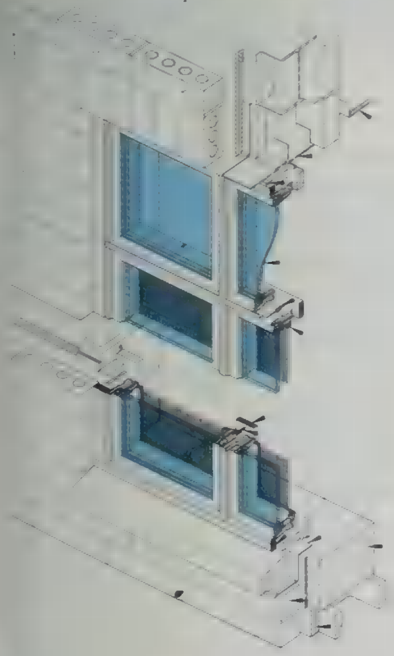
Stillwater, one of Minnesota's oldest cities, needed a new high school. Designing one that would harmonize with historic old buildings was the challenge for project architect Tammy Magney.

"Andersen clad-wood windows were a natural for the older look and because teachers believe daylight helps learning, each classroom has a large expanse of windows. Andersen clerestory windows are in the cafeteria and common areas, too."

The Andersen grade on installation? "The windows easily adapted to the masonry openings. Andersen took our drawings and delivered special jamb details. They actually were part of the design team."



Ask the Andersen Commercial Group℠ how Andersen® Windows can help you complete your next project with honors.

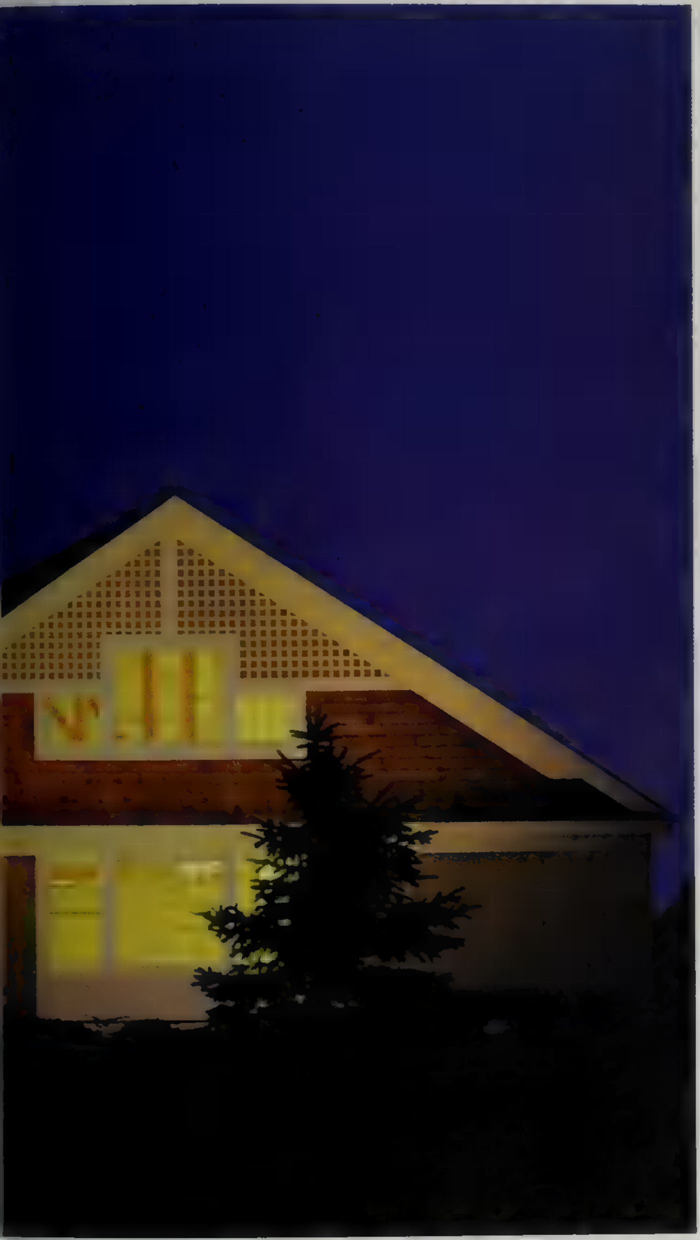

1. Acoustical tile ceiling
2. Steel lintel
3. Silicone sealant with foam backer rod
4. Andersen® High-Performance™ insulating glass
5. Andersen® aluminum reinforcing and vinyl trim strip
6. Andersen® Awning Window with optional screen
7. Interior hardwood casing
8. Andersen® wood joining strip and vinyl trim
9. Andersen Perma-Shield® casing
10. Subsill flashing
11. Concrete masonry sill
12. Face brick
13. Rigid insulation

THE PELLEGRINI WINERY CALLED FOR WINDOWS

THE ANSWER, NATURALLY, WAS VINTAGE ANDERS

Pellegrini Winery, Cutchogue, Long Island, NY
Architects: Nancy Steelman and Tom Samuels
Samuels & Steelman, Cutchogue, New York

ECTLY BLENDED BEAUTY AND ECONOMY.

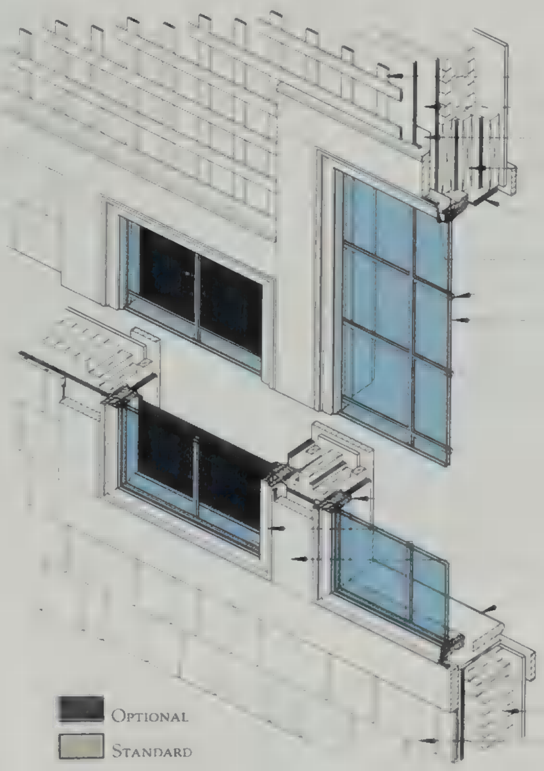


A subtle old-world charm in a modern wine-making facility. That's what architect Nancy Steelman foresaw in the design of the esteemed Pellegrini Winery.

Because much of the wine is sold on the premises, a warm, inviting environment was desired. "The entire open ceiling is supported by massive timber beams. Beautiful, but it could get dark and dreary," said Steelman. "We used Andersen® Windows in a clerestory application to daylight the interior. And the wood finish blended perfectly."

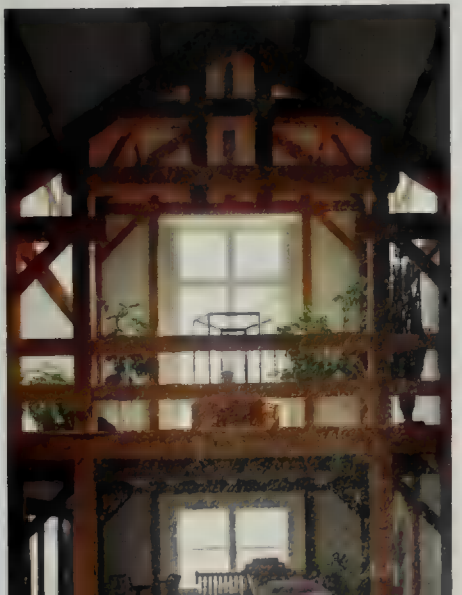
"All the other windows we looked at were single glazed," Steelman continued, "but Andersen Windows were able to provide High-Performance™ double-pane glazing with interior and exterior dividing grilles at a fraction of the cost. Budgets were tight and Andersen windows saved us 30% over other windows."

So, have the fruits of our labors at Andersen come to light? Perhaps Mr. Pellegrini sums it up best. "Now our wine has to measure up to the image of our winery."

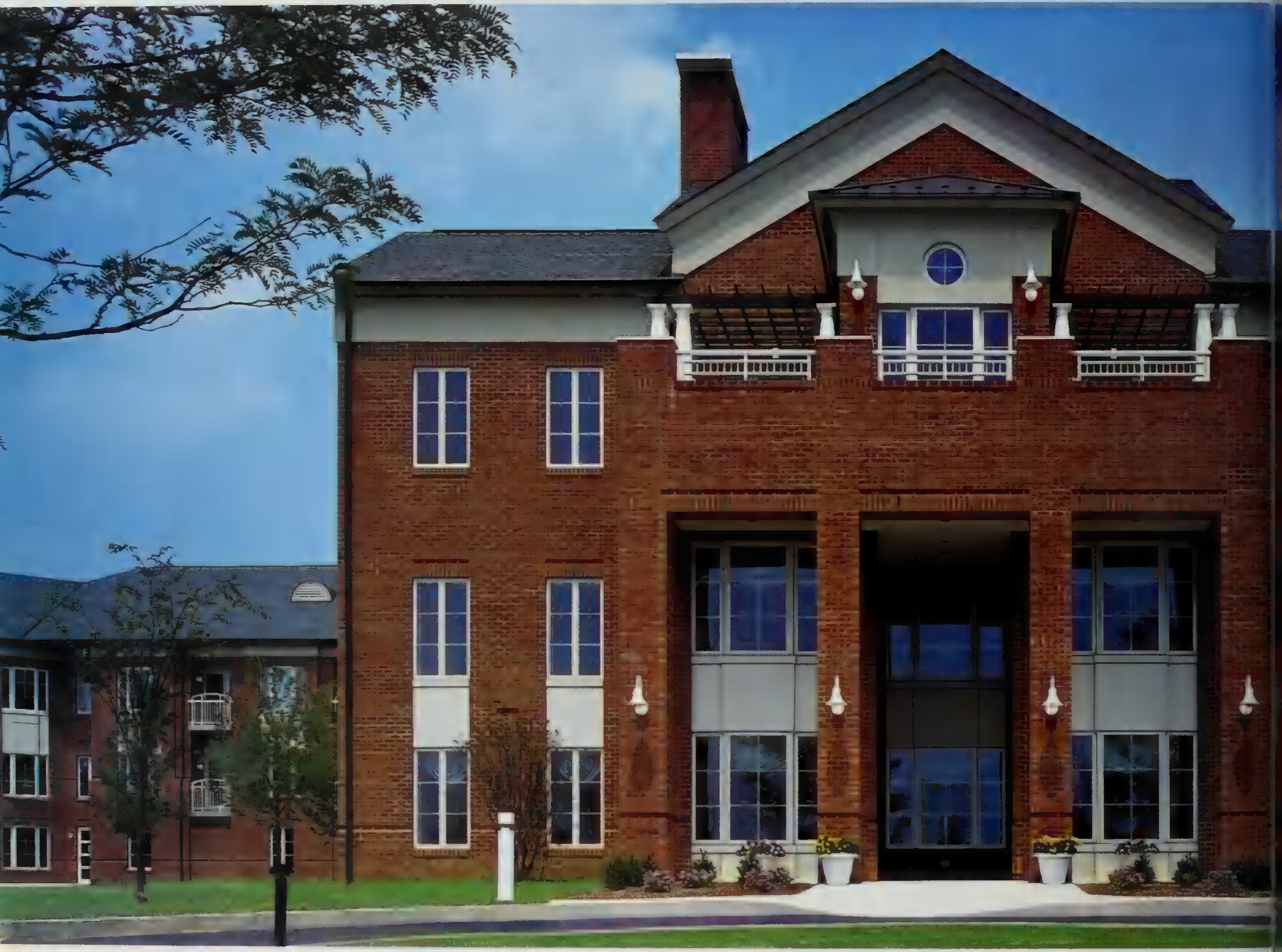


Window Details

1. Cedar lattice on rough sawn cedar plywood
2. Plywood sheathing
3. Flashing
4. Built-up 2 x header
5. Andersen interior extension jambs
6. Silicone sealant with foam backer rod
7. Andersen interior grille
8. Andersen® High-Performance™ Insulating Glass
9. Andersen awning picture window
10. Andersen awning window
11. Cedar trim
12. Painted wood stool with 1 x 4 apron
13. Batt insulation
14. Cedar shingles



ANDERSEN COMPLEMENTS THE ARCHITECTURE OF A CLA



ARCHITECTS: REESE, LOWER, PATRICK & SCOTT
LANCASTER, PENNSYLVANIA
PROJECT ARCHITECT: RANDY SOVICH, AIA

RCH, AND WINS COMPLIMENTS FROM RESIDENTS.

During the initial planning stages of Kirkland Village, a retirement community in eastern Pennsylvania, residents were asked to share ideas for the design of their new home.

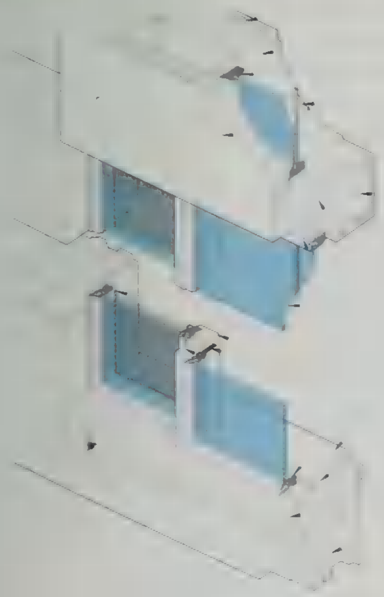
Knowing the development would share 13 acres with a prominent local landmark, the First Presbyterian Church of Bethlehem, one request was voiced time and time again.

"Honor the architecture of the church."

"At first we thought we would have to use custom windows to match the lines and color of the church windows," said Project Architect Randy Sovich. "But a custom combination of standard Andersen units gave us the look we wanted."

In fact, Andersen® Windows and Doors were used throughout this project with such grace, the design won a Gold Seal Award from the NAHB Significant Seniors Housing Awards Program.

Not to mention the praise of those who now dwell there.



1. Metal furring
2. Gypsum board
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6. Precast concrete lintel
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10. Andersen casement window with optional screen
11. Interior wood casing by others
12. Andersen extension jamb
13. 2 x [illegible] support with metal cladding
14. Andersen stationary casement window
15. Wood stool
16. Flashing
17. Special shape brick sill
18. Concrete block

■ Optional

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reaking the Siege: rchitects in Sarajevo

In the Bosnian capital, architects Lebbeus Woods and Thom Mayne found architecture more of an issue than in many places not at war.

itor's note: Last year, architects Lebbeus ods and Thom Mayne spent a week in rajevo holding workshops with architects d architecture students. At a time when ny American architects bemoan their s of influence on society at large, Woods d Mayne used architecture as a way of dressing basic needs of a war-torn city. ce famous for its multi-ethnic culture d its diverse architectural heritage, rajevo today represents the nightmare of luralistic society ripped apart. Lessons m Bosnia might well apply to other places ere multi-culturalism is under siege from ressive governments, ethnic hatreds, or npant crime. C.A.P.

Lebbeus Woods

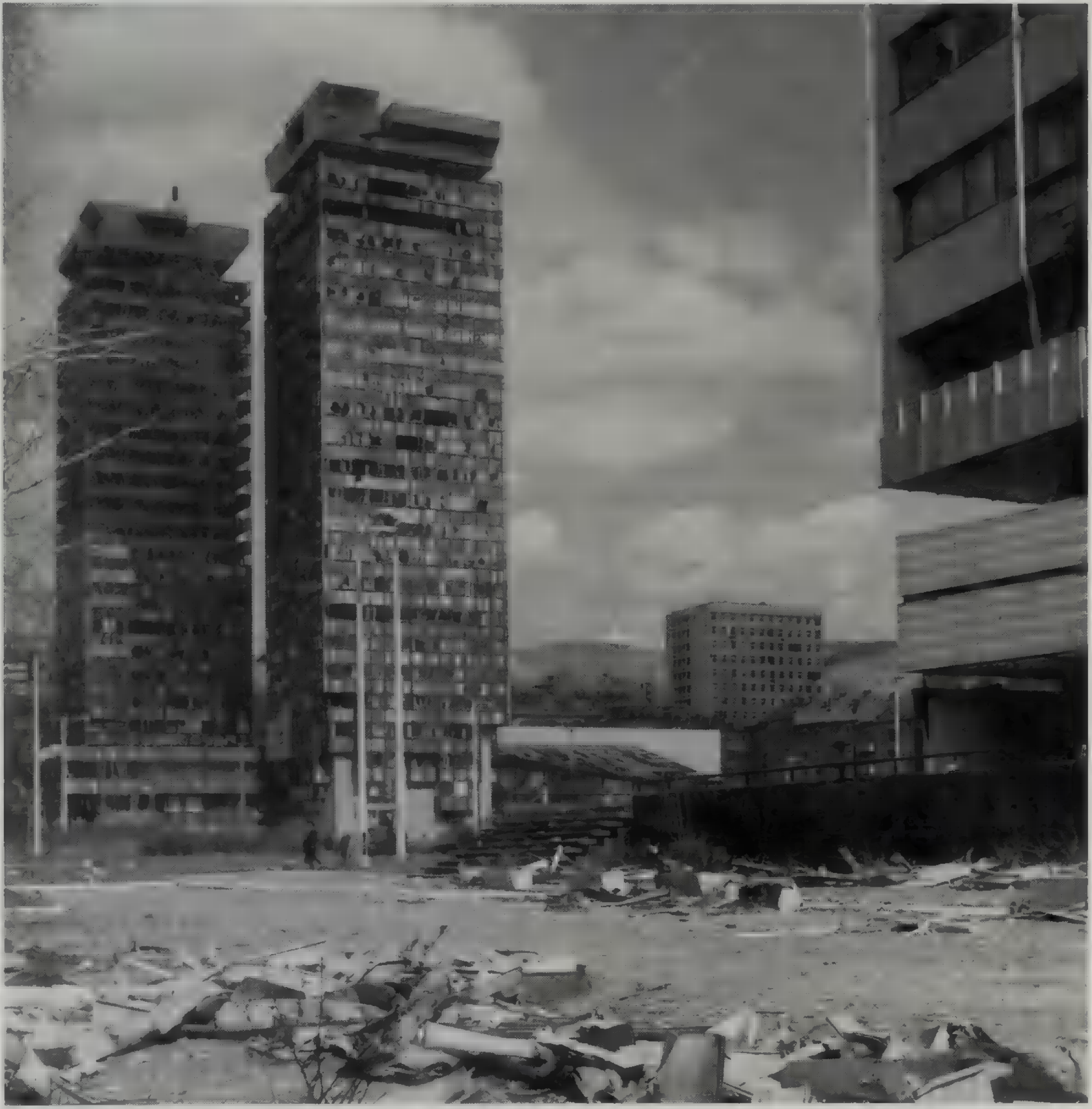
ow can anyone go to Sarajevo now and talk out architecture? There's still a war going there! What those people need is food and nkets and medical care, not architecture." at's what many people say after hearing I e gone to Sarajevo to discuss architecture. fact, the mere mention of the idea elicits same kind of comment.

at "those people" need is certainly food d blankets and medical care. But that is all. They also need art, theater, music, hitecture, and all the other activities t sustain humanity in any community where. After more than three years of a ge aimed as much at the dehumanization Sarajevans as at the military conquest of city, architecture is more of an issue than s in places not at war.

Sarajevo, architecture is not only about ildings basic to daily survival, but also out concepts of civilized life that have been der merciless attack. In Sarajevo, architec-e is about the idea of construction as an idote to barbarism and destruction, about nning for the rebuilding of a shattered city a form of resistance to despair.

reign architects, artists, and cultural ures are needed in Sarajevo, and are lcome. Their willingness to come and to

bbeus Woods is a New York City architect ose monograph entitled War and Architec-e *will be published this coming fall by -U Publishing.*



©Paul Lowe/MAGNUM

©Ekkehard Rehfeld

©Ekkehard Rehfeld

The ruined UNIS towers, once symbols of modern Sarajevo, today stand as icons of a different kind (top). Buildings with historical value, such as the National Library (left) have also been targeted by Serbian gunners. Architects and students present their work in workshops run by Woods and Mayne in a building battered by the siege (above).

ircle 23 on inquiry card

A twisting structure for the site of a destroyed hospital was designed by Mirna Jamakovic and Dado Pokrklic (top). Elma Durmisevic developed a scheme for reusing the UNIS towers (bottom).

work is, first of all, an act of solidarity. But they also bring fresh energy and ideas to a people worn out by the most difficult living conditions. This is a reality not always well understood by Americans, largely because the news media create the impression that Sarajevans have no life other than that of shivering, starving, and dodging shells or sniper's bullets.

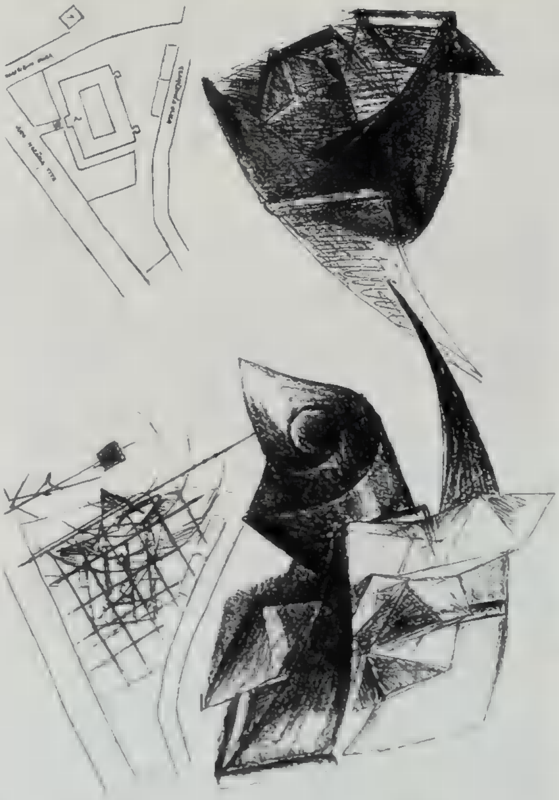
Going to Sarajevo

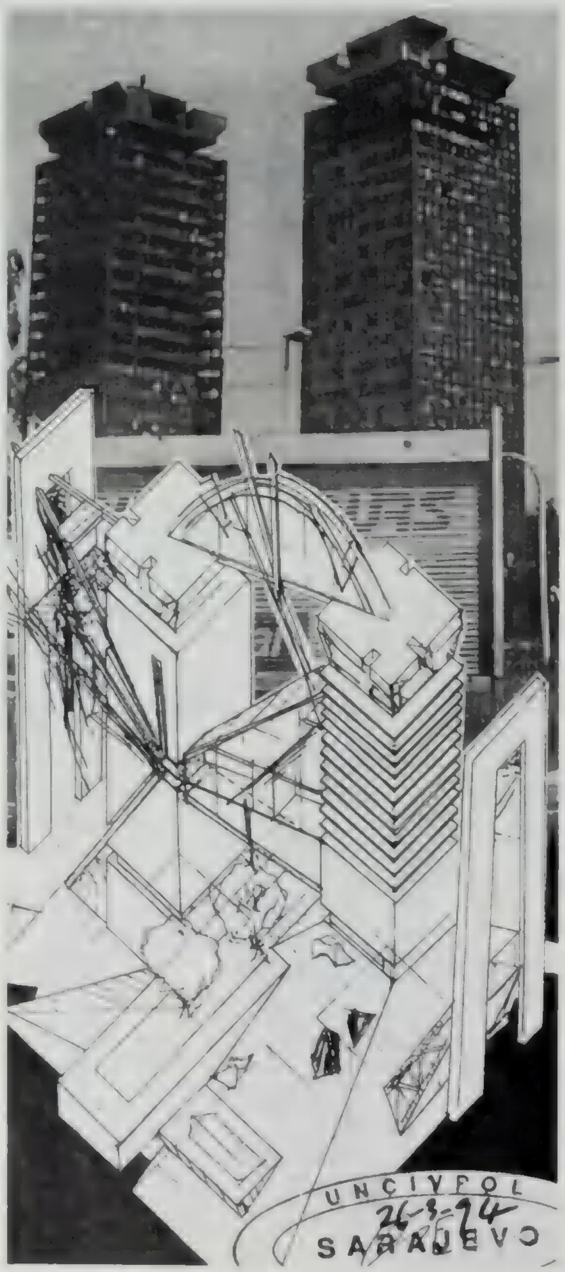
At the request of Sarajevo architects Ivan Straus, Hasan Cemalovic, Tanja and Stjepan Ros, as well as theater director Haris Pasovic, Thom Mayne and I traveled to Sarajevo in March of last year. While I had already made several trips to the city since the Serbian invasion of Bosnia and Herzegovina, this would be Thom's first venture into the besieged capital. Funding was offered by the Soros Humanitarian Foundation, under sponsorship of the Research Institute for Experimental Architecture. The purpose of our trip was to conduct workshops with Sarajevo architects and students that would critically examine the condition of the city and its people, and possibly indicate some directions for reconstruction.

Thom and I were joined by Ekkehard Rehfeld, an architect from Vienna who had traveled with me to Sarajevo previously to make preparations. The three of us conducted workshops involving more than 50 architects and students.

Mayne's group looked at the city as a whole by dividing it into a grid of some 26 squares, each to be dealt with by a single participant. Rehfeld's group examined one of Sarajevo's major parks, which has been stripped of its trees for firewood during three bitter winters largely spent without electricity or oil, and is now being used in part as a cemetery. My group focused on how war-damaged sites and buildings might be rebuilt. In all cases, the emphasis was not on generating architectural designs per se, but on getting participants to think about specific parts of the city and actual conditions in new ways. Only then would it be possible to build affirmatively on the devastating experiences of the war.

[illegible] emerged from the [illegible] nt these experi-





ences with symbols or memorials of one kind or another. These were the weakest ideas, as they merely invoked memories of destruction, without any transformation. T stronger work attempted to identify new relationships in the city's fabric revealed b the siege—usually juxtapositions of familia elements jarred from their original relatior ships or thrown into dramatic shifts in scal

For example, one group of participants use the traditional Bosnian house, which is arranged around a series of intimate courtyards, as the basis for reconstructing an entire block in the city center. Another envi sioned the pieces of a blasted wall as an ech of the fragmentation created by Modernist town planning. And a third imagined a new type of greening in a barren park—where artificial trees are metaphors for nature an the design offers a setting for both recreati and reflection.

Fresh ideas on urban patterns

In these and other, similar ideas, the reconstructed city was imagined neither as a nostalgic echo of the old, nor as an abstract imposition. Rather, the questioning of existing purposes and assumptions forced on Sarajevo by the siege inspired fresh interpr tations of the relationships among new and old urban elements and patterns.

The workshops ended with a presentation c the participants' projects in the Gallery of Bosnia and Herzegovina in the city center, attended by all participants, as well as man architects and other Sarajevo citizens. Feel ings were mixed. The city was in ruins and still under siege. Electricity and water wer sporadic. Food was scarce and expensive. Every day more people were being killed by snipers shooting into the city from the mountain ridges. Battle lines were still hel against the Serbs by a lightly armed, but determined, army of Bosnian defenders. Th people of Sarajevo, including those who gat ered in the gallery, were still prisoners in their city, virtually cut off from the outside world.

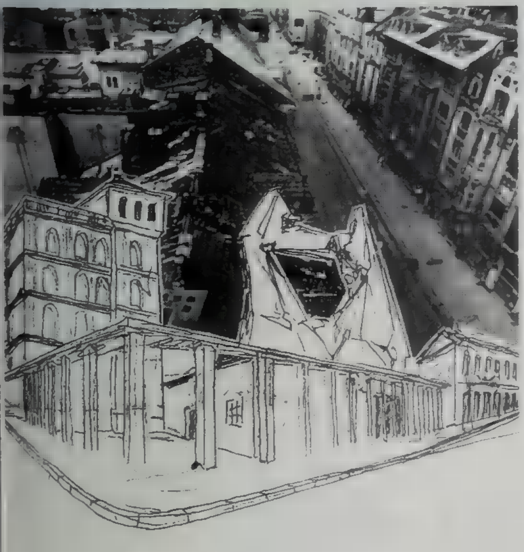
It would be some time before any of this would change, and even longer before recor struction could begin. It was not the momer to be self-congratulatory or even to say wha

ꞏ the workshops would be to the architects 1 people of Sarajevo in the difficult task ·y faced. But the fact that the workshops ɔpened clearly marked the beginning of effort to confront this task critically.

e war in Bosnia-Herzegovina and the ge of Sarajevo have stripped away the ɔerfluous and redundant elements that ·umulate in peaceful times, exposing both ꞏ best and the worst in human nature. The rst is seen in the violence and cruelty comtted by people who in other times would be ndemned as criminals, but who rise to the ·face when civil order is disrupted. The st is seen in the resistance of people to the ıtalization of their cultures, families, and ·sons, and in the noble instincts for cooperon that must continually overcome fear 1 despair.

ese are qualities found not only in Sara- ·o, but also in London, Berlin, New York, s Angeles, and Mexico City, wherever the ·ces of change are steadily and in some ses violently overturning an entrenched ler. In Sarajevo, however, the best and the rst—creativity and murder—exist in such ırk contrast that they are impossible to ıore. There, the struggle to launch new ·as is not an option, but a necessity. As a league of mine has said, "Violence has ınsformed the architecture, now architec- ·e must learn to transform the violence." is challenge rings true far beyond the city ıits of Sarajevo. ■

ɔroject by Sasa Radjenovic and Dragan ırtinovic uses old and new elements



Lost in a nightmare

By Thom Mayne

The British transport plane's payload consisted of four pallets of flour, a Canadian nun, a British journalist, and myself—a Los Angeles architect who, I'll confess now, was full of questions as to what he was doing there. I had been pondering my role since I had accepted Lebbeus Woods' invitation to participate in some architectural workshops in war-ravaged Sarajevo. Clearly we architects were not equipped to help in any tangible way. Equally clear, we were too early to aid in any rebuilding that might happen later.

I had decided to travel to Sarajevo simply to lend my support to those who have lived in a city that for the last three years has been systematically cannibalized. I was drawn by the knowledge that Sarajevo had once been a model of cosmopolitan pluralism and was now under siege. What I found was a people who are innocently lost in a nightmare, as unable as I am to understand why.

> *"It was in Sarajevo that I saw and appreciated the full power of architecture. Buildings that have deep meaning for people... can be blown away by a lone gunner on a hill."*

It was this disengagement from good sense that struck me. On the one hand, the poetic-to-prosaic transformation of a city to military camp was evident. On the other hand, I found myself constantly confronted with the power of the human spirit to aspire to normalcy at all costs: three women walking hand-in-hand, a sidewalk café and the smell of espresso, children playing in a vestpocket park, women who had lost 20 percent of their body weight but still found it important enough to wait in long lines for overpriced tubes of mascara.

As a resident of Los Angeles, I have been involved in the struggle to create an architecture with meaning in an increasingly pluralistic world. Like many of my peers, I embrace the complexity that a heterogeneous population brings with it. Yet in Bosnia and Serbia, a multi-ethnic society has collapsed. People are killing others because they are different and are destroying any architecture which represents these differences.

It was in Sarajevo that I saw and appreciated the full power of architecture. Buildings that have deep meaning for people—a mosque, a library, a school—can be blown away by a lone gunner on a nearby hill. To live amidst the ferocity of this destructive force, even for just a few days, reminded me of how little time and energy it takes to erase the products of enormous effort. I think this was what made the most significant impression on me: that there are powerful forces attacking the many layers of intelligence, energy, and emotion invested in the city as architecture. This investment is the ultimate value of our work and provides a glimpse of how people live together in cities.

For four days I was immersed in a world marked by the sheer randomness of life. One person on a streetcar is killed by a sniper, while the other passengers remain unharmed. Relief convoys are allowed to enter the city one day, but not the next.

So it comes as no surprise that the collective tissue of ideas culled from the work of the 26 students in the design studio I ran for three days in Sarajevo was dominated by notions of chance, entropy, and randomness. But the students' work also showed interest in more mundane projects—restaurants and shops, for example—that express their longing for business as usual. The resilience of these students is a tribute to the diverse and cosmopolitan life of pre-war Sarajevo. ■

Thom Mayne is a principal in the Santa Monica, California-based architecture firm Morphosis.

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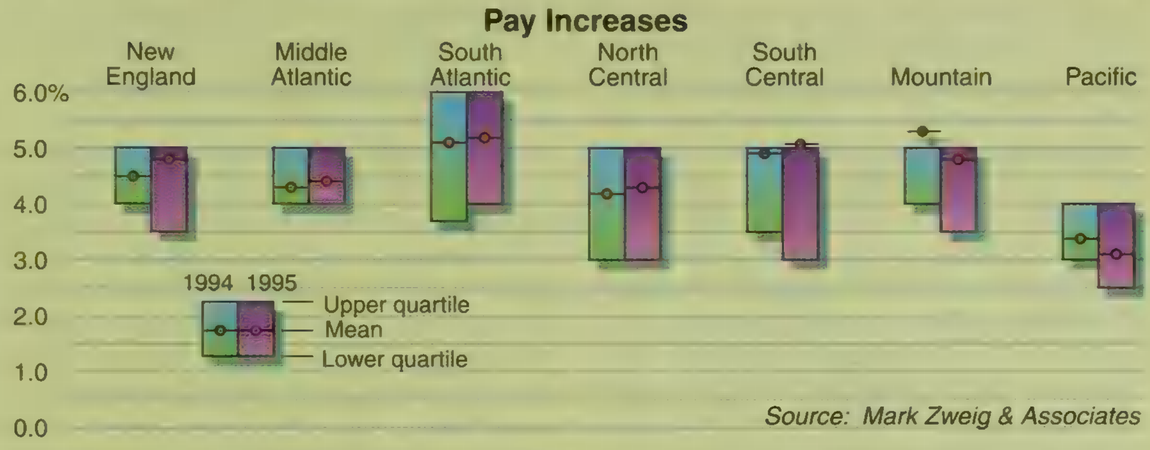
ndicators

dgeting for pay raises ticks upward

ms in Mark Zweig & Associates' *Policies 'rocedures Survey* are budgeting slightly her median amounts for raises in 1995. ne firms, though, said they were budget- for no raises, and one budgeted 20 cent. Only 70 percent of architecture firms ually budget for raises, says the survey (80 cent of A/Es do). Raises were lowest in Pacific Northwest, which is typically the est-paying region. The survey costs $195 l can be obtained from Box 8325, Natick, . 01760, 508/651-1559. ■

Pay Increases

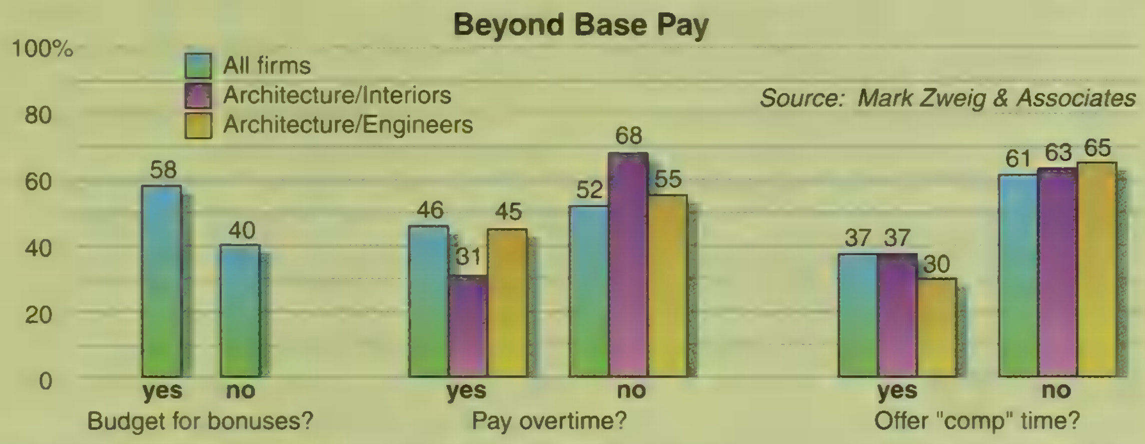


Source: Mark Zweig & Associates

w do firms deal with overtime?

e Zweig survey described above also asked ut means of compensating salaried (offi- ly "exempt") employees in a profession ere overtime work is a given. Though 58 cent of firms budget for bonuses, this does mean the same percentage of firms pay m. The survey also shows that architects d to offer overtime pay less often than do er design professionals and compensatory e off at about the same rate. Firms that exempt employees "hourly" have run ıl of labor laws. ■

Beyond Base Pay

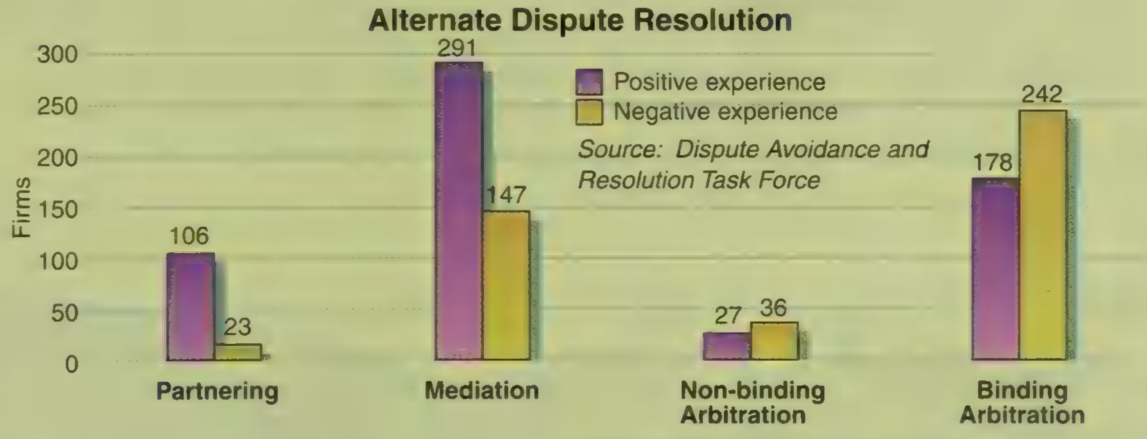


Source: Mark Zweig & Associates

ımbs up to partnering, mediation

spondents to a survey of attorneys, design ofessionals, and contractors endorsed part- ring and mediation as alternate dispute olution (ADR) methods. By comparison, se surveyed had had more negative than itive experiences with arbitration. Insur- , like DPIC Companies, one of the nsors, have been promoting ADR to uce costs associated with litigation. While atively few of those surveyed had actually rtnered," they overwhelmingly predicted reased use of the technique. ■

Alternate Dispute Resolution



Source: Dispute Avoidance and Resolution Task Force

Charts prepared by Leanor Glynn

ort Takes

- **Housing slides:** The residential market continued to show weakness, according to February numbers released by F. W. Dodge. Commercial work (except for office buildings) and institutional work (except for health care) held its own.
- **Where's that recovery?** New construction as a percent of gross domestic product has climbed from its 7.0-percent trough of 1991, according to the Commerce Department. It's now close to 7.5 percent—a far cry from its 1986 peak of more than 9.5 percent or the 9.3 percent of 10 years ago.
- **Construction costs under control:** *Engineering News Record*'s construction economics department records sliding lumber and gypsum prices in 1995's first quarter, while steel, copper, and aluminum are climbing rapidly. Labor raises remain in the 3- to 4-percent ranges. The metals prices are expected to ease later this year; gypsum and lumber reflect a declining housing market. ■

Where Print and Electronic Worlds Collide

By Elena Marcheso Moreno

From isolated rooms to monumental edifices, libraries have for centuries been the traditional repository of history and culture. Now the electronic revolution is thrusting the very concept of this institution into turmoil. The rapid expansion of information technology has overburdened the resources and physical space of libraries everywhere, as they struggle to stay current with new forms of communication—the Internet and other on-line services, CD-ROMs, and so on.

Redefining the library

With on-line access available for everything from legal citations and research studies to cooking and self-help, the need to consult printed materials and book-stack space is going down, right? Wrong. Electronic technologies actually ease the publishing of more printed materials. At the same time, librarians are increasingly called upon to decide the form in which information should be catalogued and disseminated. They must decide how to stay ahead of constantly changing technology.

Architects must not only understand how people will use a library at completion, they must anticipate the very different way patrons are likely to use it in a few years, says Geoffrey Freeman, principal, Shepley Bulfinch Richardson and Abbott, a Boston firm long prominent in the design of academic libraries. The vast collections of hard-copy texts that may never be converted to computer formats will always attract users to specialized research libraries, but these institutions are increasingly offering an array of computer-search devices to make material more available. Large public libraries, too, are turning to electronic means for accessing collections, but also offer training (as do some research institutions), so that patrons learn how to use sophisticated electronic-information tools.

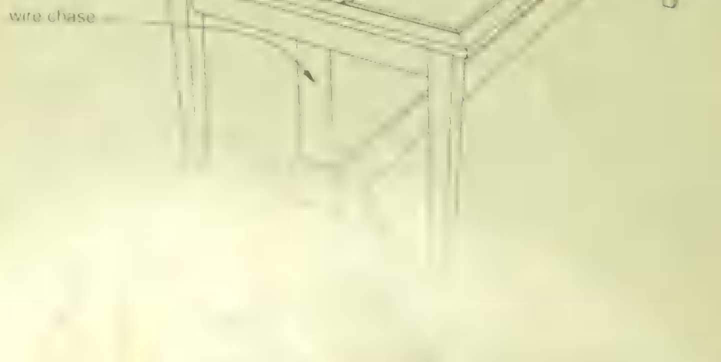
Where libraries go wrong

The physical consequences of these changes are only now being addressed. Standards prescribed by states and organizations like the American Library Association have failed to keep up with the changing ways collections are used. Andrea Michaels, president of Michaels Associates Design Consultants, an Alexandria, Va.-based firm specializing in library planning, found that programmers too often assume a constant 5-percent increase in the size of book collections for a 20-year usable building life. But they fail to recognize the space or support needs of proliferating electronic devices such as terminals, print fax machines, disk storage, manuals, and copiers. Other program issues often over-looked include space for both research an administrative-support activities; the phy area required for circulation security devi coin changers, and storage of meeting roo furnishings, out-of-service technical and media equipment, and supplies. Planning often lags code changes, with the result th some facilities didn't plan for—or underst the consequences of—requirements for sp klers in stack spaces.

Michaels found recent libraries to be muc larger than standards would have predict "We assumed that either the architects ha designed inefficient buildings, with too mu area consumed by atriums and dramatic lobbies, or that the engineering discipline had increasing appetites for space." But t firm found that new libraries added techn gy faster than anticipated by even the mo ambitious projections, and that virtually every staff and user workstation needed more surface area for better efficiency an ergonomics. Too many institutions couldn easily respond to changing needs.

Even in relatively new facilities, Michaels Associates found lighting that was too din stacks, too bright in study areas (where

Elena Marcheso Moreno, of McLean, Va., writes on architecture and its technology.



ıe long-predicted end of printed books is still not upon us. Libraries,
wever, have become the testing ground for the architectural
commodation of numerous electronic technologies.

ect lighting causes computer-screen
re), or completely lacking at seating near
ndows (making the seats useless at night).
addition, hvac systems often lacked ade-
ate filtration capability where large
antities of dusty print materials were
ndled, and weren't flexible enough to
ndle erratic use patterns. (In universities,
h use is between classes; in public
raries, it's at lunchtime, after work, and on
turdays.) While laptop computers and
re-efficient lighting permit some downsiz-
of mechanical rooms and duct space, more
ce is often needed for communication
vices and electrical closets. The Americans
h Disabilities Act requires wider stack
rridors and careful exit design, including
ces of refuge near stairs and elevators.

e- and life-safety systems have also
come more complex, with space and cost
plications. All libraries now use sprinklers
fire protection, says Mario Boiardi, a
tner with Hartman Cox, in Washington,
C., because wet books are better than
rned books. (They can be salvaged at facili-
s such as the General Electric Space
vision at Valley Forge, Pa., which freeze-
es soaked books, often returning them to
ir former condition.) Halon extinguishing
stems, once used in some rare book areas,
ve been phased out. Current practice, says
Boiardi, is to use pre-action air-filled sprinklers so that water is not accidentally released during maintenance or if pipes leak.

"Building programmers and library directors can expect space needs to be 300 percent of what they were two decades ago," says Michaels. "Doubling current areas won't provide for growth or change in service deliveries. In addition to more space for electronics and associated equipment, dead-end aisles will need to be 5-ft-wide so wheelchairs can be turned around; all others, between 3-1/2- to 4-ft-wide. Then, too, it is no longer possible to put files or storage close to exits. All of this means less efficient use of square footage in libraries from a programming point of view."

Shelving more in less space

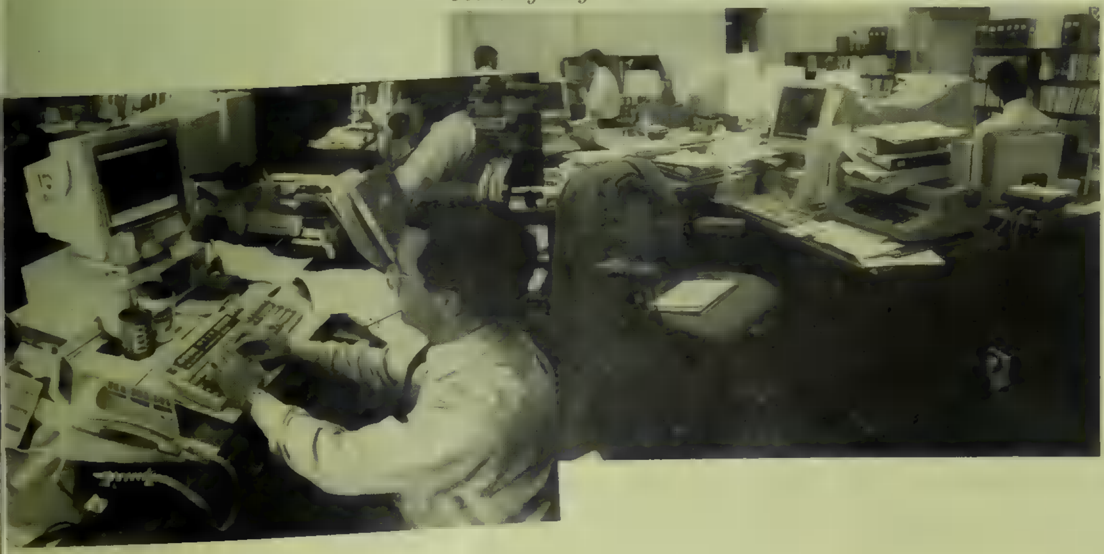
As more information becomes available on-line, some books and periodicals are used less frequently, but not so infrequently that they belong in an archive. Compact storage is helping to shelve these printed materials in condensed space that is still accessible to the library patron. Compact shelving consists of four or more vertical shelving units on a track. Normally nested together, the units can move on the track to make an aisle when a user needs access to a given shelf. The system radically shrinks the floor space needed for occasionally used stacks. While compact storage has typically been used in library-staff areas, it's seeing increased use in public spaces. Despite higher cost, it's finding a market within libraries where physical expansion is difficult.

Compact storage is not a panacea. Boiardi says he finds himself relying more and more on compact storage for university and specialized libraries, but points to some easily overlooked pitfalls. "Because of more concentrated loads, floors must be stronger," he says, and ceiling heights must permit sprinklers to cover every "aisle." He estimates that the combination of these elements means that compact storage requires two feet more floor-to-floor than conventional shelving. If other programmatic needs mean that ceiling heights in stack areas must extend to other spaces, the cost premium for the compact system is even higher, Boiardi explains. Another way to cope with space limitations is to move off site materials that have been superseded by electronic access. Such material can be kept in less-expensive, off-campus, industrial-type buildings, says Boiardi.

A library experiment

Opening its doors for the first time last September, the Leavey Library at the University of Southern California was designed by

Courtesy Meyer Scherer & Rockcastle



Clearing the Senate's info cobwebs: *The uneasy fit of electronic technologies within research facilities is all too evident in the U. S. Senate Library, where staff works under conditions shown, documented by architects Meyer, Scherer & Rockcastle. Staff will get new and better space. And users will find tables equipped with adjustable task lighting, power outlets for laptops, phone lines for modems, and jacks for data (drawing opposite). Leather inserts offer an optimum surface for increasingly quaint handwriting.*

Some say expanded space for books and periodicals will soon be superfluous. Others contend that computers will actually make printed resources more useful if they are too expensive to digitize.

Shepley Bulfinch Richardson and Abbott as an experimental facility that recognizes how technology is changing the research library.

Housing more than 125,000 volumes and 1,200 seats, paper-based and electronic information coexist at Leavey. At grade, a conventional reserve area offers a quiet environment for students to use paper-based materials on their own. Students using the three conventional stack levels can also plug laptop computers into study-carrel outlets, offering the best of the electronic and hard-copy worlds. The Information Commons, one level below grade (this page and opposite), is a much noisier place, as students work individually or in groups of up to 10, using desktop computers not only to locate printed information, but to do electronic research using on-line resources like the Internet. To help students learn to use electronic tools, training areas and an auditorium equipped with audio-visual equipment are nearby.

The planning and construction of the $28-million library took place under the direction of Peter Lyman, now head librarian at the University of California, Berkeley. "We discovered that students tend to work in clusters, so we switched our focus to groups to how the computer could be introduced to help them learn better," explains Lyman.

A new look at old libraries

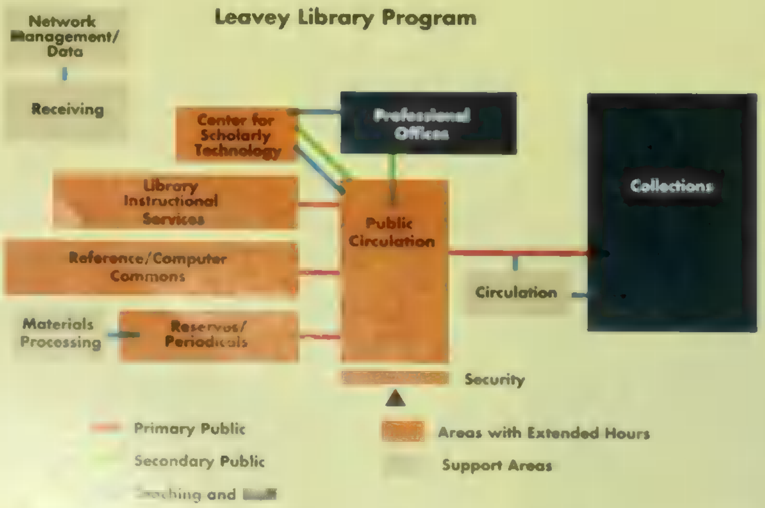
Renovating older libraries presents unique challenges, but the architect can respect traditional library spaces while easing users onto the information superhighway. Jeffrey Scherer, of the Minneapolis firm Meyer, Scherer & Rockcastle, is in the midst of moving most of the U.S. Senate Library from a historic location within the Capitol to the Dirksen office building. Computerized technology is critical in this library, where staff members keep one eye on C-Span and the other on documents of major historical significance. "American culture is seduced by new technologies and tends to throw out the old," says Scherer. Preferring peaceful coexistence, Scherer sees no conflict in placing a facsimile machine or computer workstation on a traditional-style table equipped with integrated wire chases. Esthetic diversity has often been a hallmark of historic libraries, he explains.

A new focus on lighting

In planning renovations for existing buildings, lighting should be carefully considered, says Scherer. Appropriate task lighting at carrels, tables, and computer stations can deliver higher quality lighting at lower operating cost. (Roughly 50 percent of the energy consumed in libraries is for lighting.) Reducing the heat gain from lighting can offset the load added by computers and monitors. Scherer suggests using motion-detectorlo switches to reduce energy use in study an conference rooms. Automatic dimming systems can step down lighting where the enough daylight. Lighting quality can be enhanced with higher (but not too high) w reflectance, fixture locations that reduce glare, combinations of both direct and indirect lighting, and avoiding large brightnes ratios.

Lighting also needs to be flexible to accou for changing uses of space. At the Brookda Hennepin Library in Brooklyn Park, Minn Meyer, Scherer & Rockcastle used ceiling lighting fixtures that slide on tracks to nev locations without needing rewiring or com cated re-installation.

With students demanding electrical and d outlets at virtually every table and carrel, adding electrical capacity and handling wiring is becoming more of a headache, es cially for older buildings. Power redundan or uninterruptible power systems may be required to protect a library's high-value electronic data. As cabling systems chang administrators find it costly to remove old wiring, but it's usually best to do so. As ca trenches and chases fill, it becomes very expensive to track what's in use and what'



[illegible] by Michael J. Thibodeau

Chan[illegible] libraries are u[illegible] *diagram [illegible] the Leavey Li[illegible] of Southern [illegible] and usage are changing in response to electronic technologies. Though conventional stack space is still the largest program element, the building must accommodate considerable space for an Information Commons (above) to support on-line research. Print reference material is also found at the commons. It's staffed with professionals who can field reference queries and compute search queries. "We tried to distinguish the reference area and the computing area and st them independently," says Shepley Bulfinch's Geoffrey* ındoned (though, software, of course, can ne to the rescue). It costs even more to add space to accommodate more wires.

uture for print?

ne say expanded space for printed ources will soon be superfluous. They ıtend that as more and more information is verted to electronic storage, the "virtual" ary—accessed on-line from wherever earchers and students are—will take the ce of the library as a discrete physical lding. Some research areas are already hly oriented to electronic information, h as New York City's Columbia Law ool. Lawyer and reference librarian ıncine Alfandary says that a great deal of current information students need is ilable electronically, but she predicts a g future for her library's vast print ources, because the law, in particular, nands serendipitous idea generation. umbing through volumes of citations often ves more "efficient" that the highly used searches that computers do best.

Berkeley librarian Lyman sees a virtual ary as already a possibility in some sci-es. On-line subscriptions to science rnals—which are proliferating as research ves into ever-more specific subjects—ıld prove cost-effective, lowering skyrocketing costs for subscriptions, shelf-space, and cataloging.

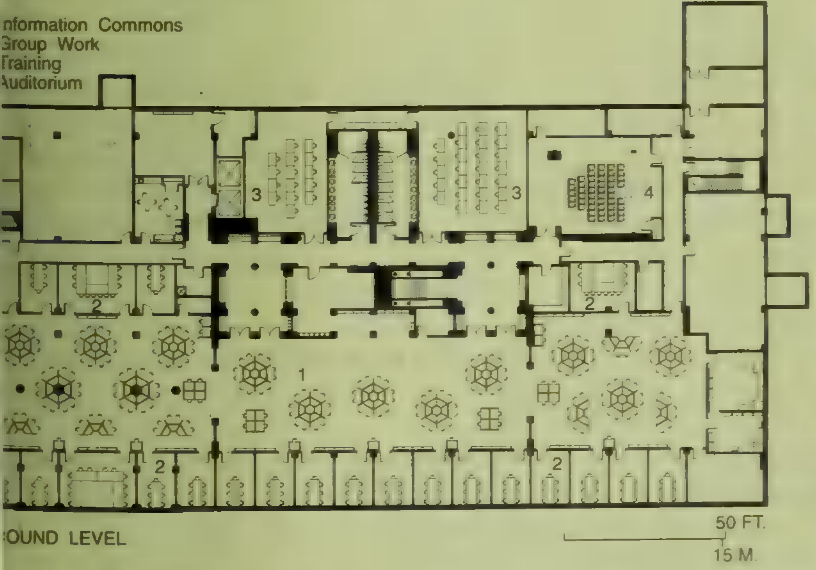
The rapid change in electronic technologies introduces new costs and management headaches. Both Michaels and Boiardi point out that there's little data available on the usable life of electronic storage methods. Disks and tapes degrade; information must continually be indexed and backed up. Someone will need to maintain old software and "ancient" equipment to access data too expensive to transfer to newer technologies.

Industry experts estimate that less than five percent of all information is available in electronic formats. Contrasted to the typical dimly lit computer-study area, the work of reading books is eased by the ability of a well-designed library to provide natural light and a pleasant view. Further, Charles Henry, director of Vassar College Libraries, notes that "Colleges and universities boast of the size of their collections when seeking to attract the best students and faculty to the institutions." Electronic sources may ultimately push out much that is now printed. According to census figures, though, the number of books printed doubled in the last nine years, and the U.S. Department of Commerce reports that 1.2 billion more books were sold in 1993 than the previous year.

Ironically, just as pundits confidently predict a future for the library as a placeless information supermarket, the library as a physical fact is becoming more important. Gate tallies show increased usage at all libraries, says Lyman. In fact, it's rare to go into a public or university library and not find it crowded.

But the image of the library as silent cathedral to solitary contemplation is giving way to a more community-oriented vision. In newer suburbs, libraries increasingly provide the social focus that Main Street or the village green once did. Recognizing this, Freeman, of Shepley Bulfinch, designed the library at George Mason University, in Fairfax, Va., around an espresso and cappuccino bar. It has become another place where social networks are established and intellectual exchange happens.

Since libraries must accommodate more print resources *and* more electronic data, institutions are already facing a severe budget crunch. Worse, public-funding cuts for libraries are in the offing at virtually every level. But as demand for library services increases, library administrators hope users will recognize the need to fund them appropriately. "People's thirst for high fidelity, immediate, and accurate information—in any form—is unquenchable," observes Scherer. ■



eeman, "but we found that ers asked library questions at e computing area and mputing questions at the ference area."

© Jeff Goldberg/Esto

Out of the computer closet: *Screen glare doesn't occur at the bottom of a deep, daylit atrium, making it comfortable to use the computerized card catalog at the Joseph S. Stauffer Library at Queens University in Kingston, Ontario. The library's architects, Kuwabara Payne McKenna Blumberg, concealed wiring for the terminals within the table.*

A Guide to Architectural Art Glass

by Stephen Knapp

From hand-formed stained glass to today's curtain walls, glass has always been a part of the built environment. In the United States, the heyday of decorative glass came in the second half of the 19th century, as glass became a more-affordable commodity, and both commercial and residential commissions became popular. In the face of Modernism, though, etched (sandblasted) glass survived tenuously, stained glass increasingly was relegated to religious commissions, and the use of art and decorative glass nearly disappeared entirely.

The resurgence in contemporary crafts in the late '60s and early '70s was perfectly in sync with a return to historic materials by the Postmodernists, encouraging a new generation of artists and craftspeople working in glass. New energy requirements and an increased understanding of the physics and physiology of light placed new demands on glass itself. For example, how could glass provide a higher level of privacy while still transmitting light? Can stained glass meet impact requirements? In healthcare environments, was there a way to infuse the room with light, and still have a soothing setting?

> *Some new glasses for the built environment have been found by architects and designers searching for new materials—glass artists exploring possibilities have provided others.*

What follows is a brief overview of some of the glass treatments available to architects today, many of which have been created to respond to these appearance, maintenance, energy-efficiency, and safety issues.

Etched glass

Etched [illegible] usually sandblasted glass, is the [illegible] of the architectural art glasses. It is less costly than other forms of art glass and is readily available. Artists, draftspeople, or monument carvers routinely execute work for architects. By first masking and then sandblasting surfaces, all sorts of patterns, designs, and lettering can be frosted on glass, making it ideal for dividers, walls, and signage.

Etched glass does have maintenance and strength disadvantages. Fingerprints are difficult to remove from sandblasted surfaces, so an overcoat—often clear with a touch of white—is usually applied to the glass. Most sandblasting, done to a piece of tempered glass, only frosts the surface, and cannot achieve deep carved effects. Sandblasting also weakens the glass.

Stained glass

Stained glass, the most traditional of decorative glasses, returned to public, private, and commercial buildings with a vengeance in the '70s and '80s. One of the most telling changes has been the larger scale of installations, especially in secular settings. Whole facades of buildings have been covered with stained glass, and large atriums have been a major focus for its colorful plays of light. In this type of architectural use, stained glass performs the same function as the standard glass it displaces, and creative designers can build on a project's existing glass budget to reduce the cost of stained glass.

With new adhesives and laminating techniques available, faceted glass and prisms have been combined with stained glass for a new look. As art glass has boomed, new manufacturing companies have started up, offering a rich palette of glass products for the artist. Although stained glass is usually not suitable for tempering, due to the imperfections in the manufacture of hand-made glass, it can often be laminated. This creat more opportunities for the architect and designer, not just for the glass artist, beca larger lights can be used. Sheets of staine glass are not available in commercial sizes but design that accommodates smaller pie can be quite effective.

Kiln-formed glass

Kiln-formed glass is flat glass that has bee heated just enough to cause it to slump or over molds, giving it a sculptural, bas-relie effect quite unlike any other form of glass. The glass surface retains a smooth finish, while the underside picks up the texture o the mold material. Unlike cast glass, it car worked in architectural sizes, with 3- to 4- widths by 6- to 8-ft heights possible.

Glass this size is usually worked in 1/4- to 1/2-in. thicknesses for architectural art gla and can be fully tempered. Because there no removal of material as in sandblasting, retains its strength, and can be easily clea and maintained. With its ability to diffuse light and give privacy, kiln-formed glass ha become an important architectural materi in doors, walls, and windows. A major adva tage of kiln-formed glass is that it can be tempered, drilled, notched, and fitted into metal rail systems—making a significant design statement while keeping the streng and functionality of commercial glass.

Cast glass

Unlike kiln forming, which uses existing sheets, cast glass starts with glass in a liquid state which is poured into a sand mo or form. Its main advantages are the thick ness of glass which can be achieved and th variety of colors available. A major disadva tage is the limitation on the sizes that can worked. Although there have been huge pieces of glass cast—giant telescope lenses and the like—the annealing time required makes these impractical for ordinary use. Artist John Lewis may be unique in worki with large-scale pieces of cast glass.

There are a few manufacturers currently casting glass for wall and floor tiles, with a variety of colors and designs, and they offe plenty of opportunity for customizing by th architect. Artists, for example, have create walls of cast-glass blocks.

Using [illegible] *steel,* [illegible] *Stephen Knapp* [illegible]

*ass artist Stephen Knapp describes new-wave
rsions of an ancient architectural medium.*

hroic glass

e of the newer players in the glass field,
hroic glass became available in the '80s.
sentially a metallic coating on glass, its
mary use has been in scientific instru-
nts, enlargers, and landing lights. Artists
l architects have discovered it, and used it
arge art installations, as a coating on
ventional glass, and on slumped glass and
nmercially available glass block. Though
d for its ability to refract color into a
ce, it is dramatically different from
ined glass. The light that passes through
glass is so strong that it "paints" a line
oss all it touches, while the opposite color
lects off the glass surface. It constantly
anges color throughout the day, depending
the angle of light passing through it.

mmercial glass

sides the art glass discussed above, there
other exciting glasses available which are
eatly underutilized. Vitrolite, also known as
rrara glass, is a thick, homogenous opaque
uctural glass once used for storefronts.
is material and some other older glasses
still available in limited quantities for
se patient enough to find them.

ere are a number of machine-rolled
sses on the market, produced both here
l abroad, and quantities of older textured
l patterned glass can still be found hidden
ay. Less expensive than custom glass, they
e a vitality often lacking in today's plate
ss. The texture is rolled onto the glass,
ing them a uniformity that stained glass
es not have, and the sizes available are
re appropriate for commercial work. New
inating techniques permit whole new
ms of glass: combinations of machine-
led glasses "glued" into a single light. For
nique piece of glass, without the cost of a
tom art glass, machine-embossed glass
1 be the answer.

m Italy comes handmade Venetian-glass
s and panels made to be used in buildings.
an produces innovative products such as
stallized glass, and Germany makes opal
sses that transmit a wonderful diffused
ht and can be used for ceilings.

o interesting are laminated glasses made
h tinted or screen-printed interlayers.

Rice paper or other thin materials can be sandwiched between glass layers. Multiple colors can be added to the PVB interlayer itself, and any type of design can be silk-screened on, including even the halftone dot patterns of photographs. This process has been used to simulate etched glass, creating a low-maintenance frosted effect. Fritted glass, with a ceramic paint baked onto the surface, provides additional decorative and glare-control opportunities.

Glass block

Glass block has also seen a resurgence, with a wide variety of shapes and designs available. Although considered a masonry product, and installed that way, there are companies offering metal framing systems that are changing the way glass block is used. Combining these installations with fiber-optic and other lighting techniques makes block even more attractive.

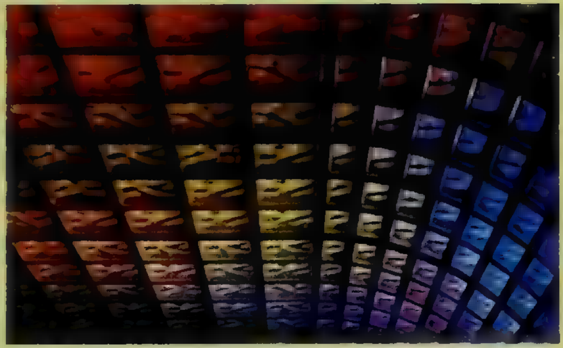
Commercial glass installers

Don't overlook innovative plate-glass installations. Glazers such Trainor Glass in Chicago are sought out for their ability to do unique installations. They offer triple-laminated translucent or reflective glass in ceilings, and have done pie-shaped glass staircases. They can also create an unusual look by simply sandwiching a layer of wire mesh between two layers of plate glass.

New directions

Many of the trends in glass for the built environment have been driven by artists, often with a nudge from architects and designers. In the future, new technology, craftsmanship, and collaboration will be the guiding forces behind an even newer wave of glass. ■

1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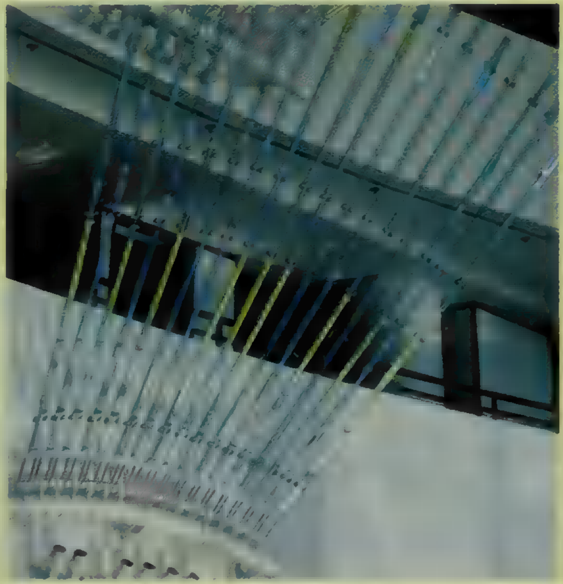
© Greg Anderson photo.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© Grants/Johnston photo

1. Stephen Knapp: 9- by 28-ft kiln-formed-glass wall for the Brunswick Corp.
2. Stephen Knapp: illuminated formed-glass structure; United Air Lines, Dulles Airport.
3. Ed Carpenter: Etched- and painted-glass wall, 19- by 19 1/2-ft; University of Wisconsin, Madison.
4. Ed Carpenter: 60- by 50- by 40-ft sculpture of dichroic glass and glass prisms; Human Resources Building, Salem, Ore.

A bibliography of architectural-glass sources appears on page 121.

Electronic Persuasion

First Prize: The Middle Passage Project

Delineators: Gregory Anderson and Lawrence Sass

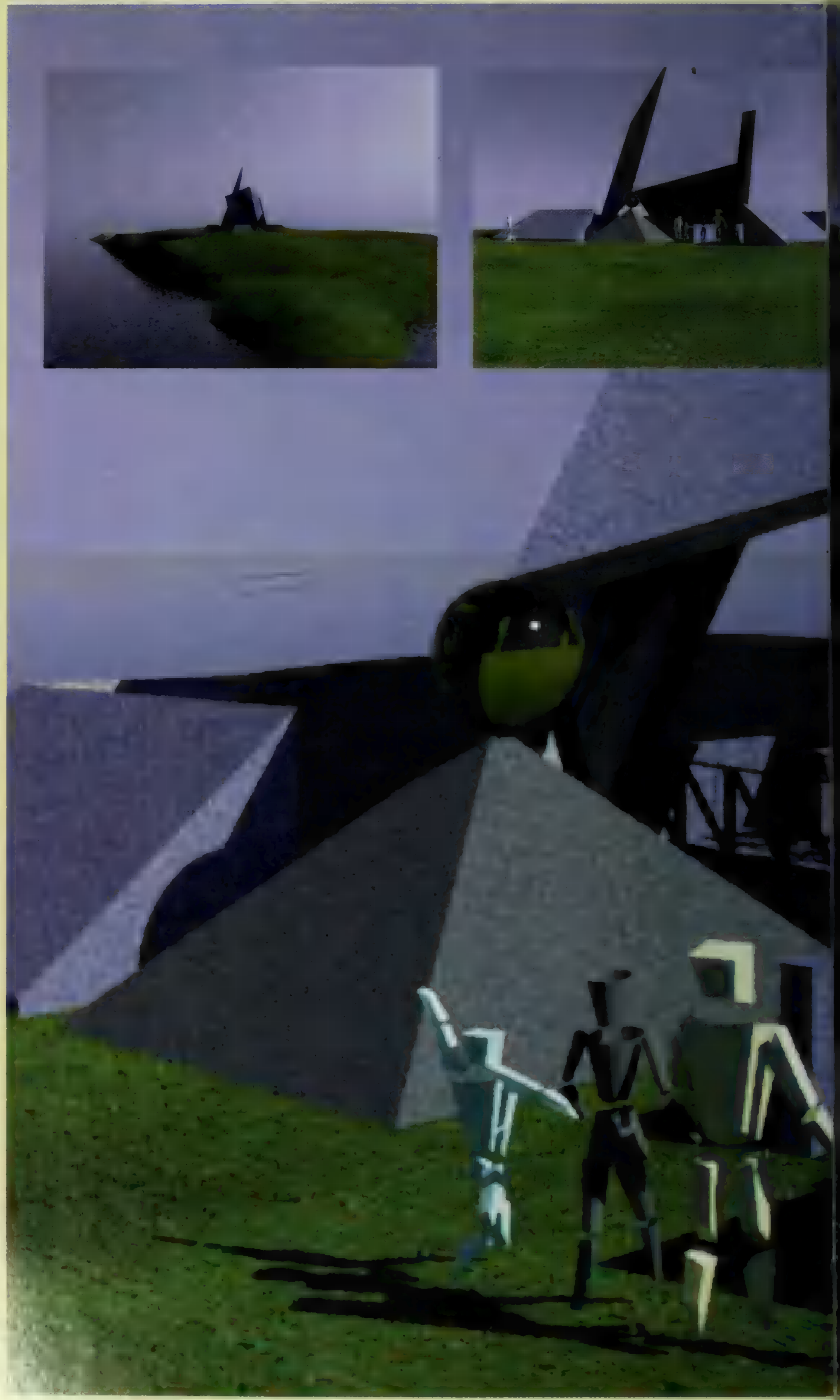
The winners, students at MIT's school of architecture, created an animation of a yet-to-be-built monument designed by the Boston architectural firm Stull and Lee. (The winners were offered a choice of BAGH Technologies' Architrion II, release 5.8, or Graphisoft's ArchiCAD 4.55; both are powerful integrated software packages, available on several operating systems.) The Middle Passage was the route slave ships used to transport Africans to the Americas. The computer animation describes the visitor experience to potential donors or patrons.

Beginning with arrival by boat (top left image), the "tour" moves the visitor around and eventually into the memorial (top right and opposite top images), where the interior of a broken cube describes the lives and cruel experiences of the millions of Africans who passed this way (and the many who didn't survive). "It's not trying to do anything beyond clearly presenting the project to the public," juror Manuel Fernandez-Casteleiro commented. (Because the entrants were students at juror William Mitchell's school, he did not discuss or vote on the project.) "It's presented very [illegible]," said juror Chee [illegible]. "It understands the symbolic value of the project. There are no gimmicks."

Computer: [illegible] Workstation; [illegible]

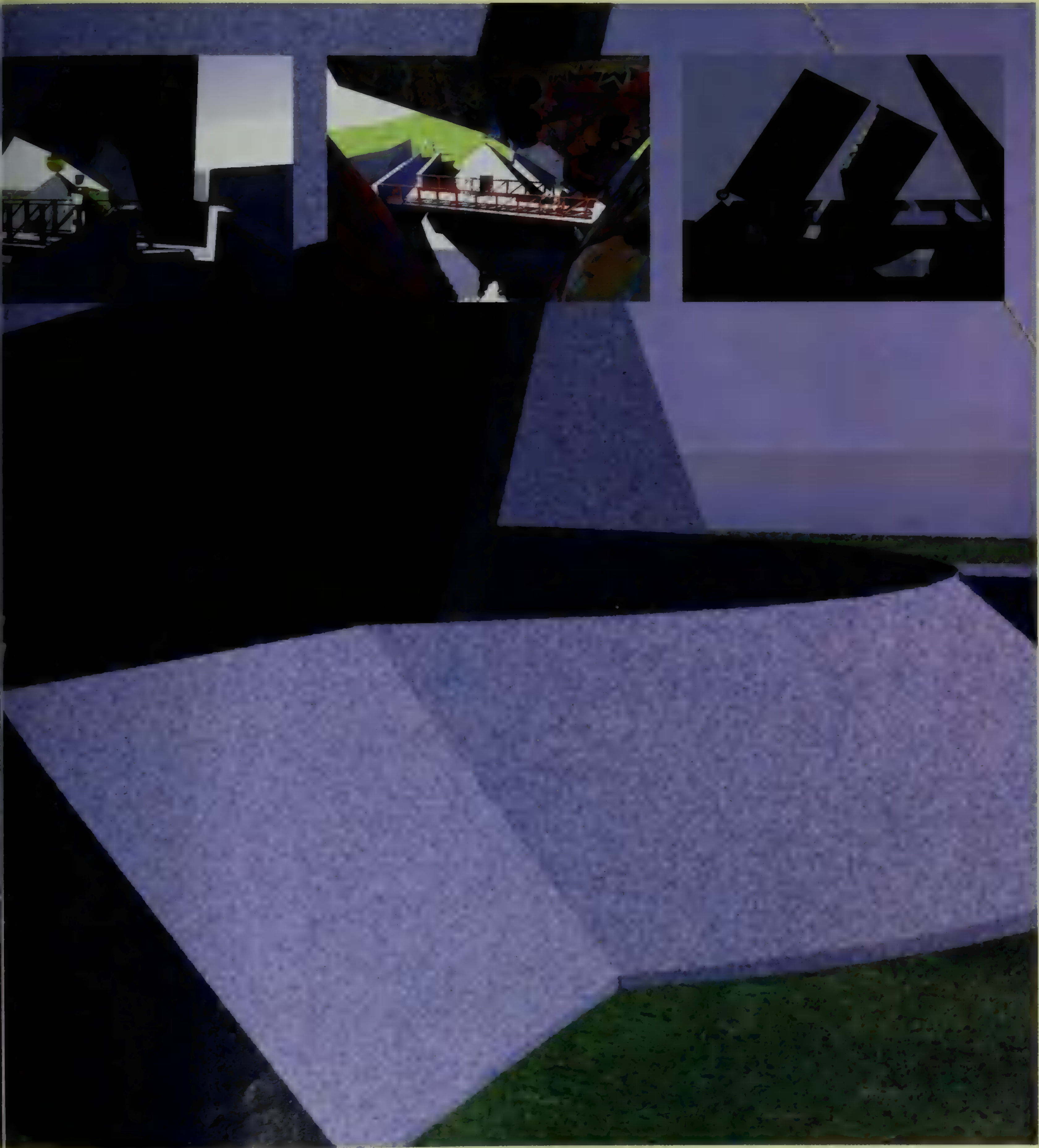
Software: [illegible] 16 Radiance 2 [illegible]

Output: [illegible]



the second year, RECORD recognizes the nputer as not just a production tool, but as a ans of exploring design options and creating sentations for clients and colleagues.

This year jurors found many presentations to be so accomplished as to look almost canned. Discussion of this year's entries will be found after the pages showing the winners.



A selection of printed images demonstrates a restrained use of lighting and rendering effects.

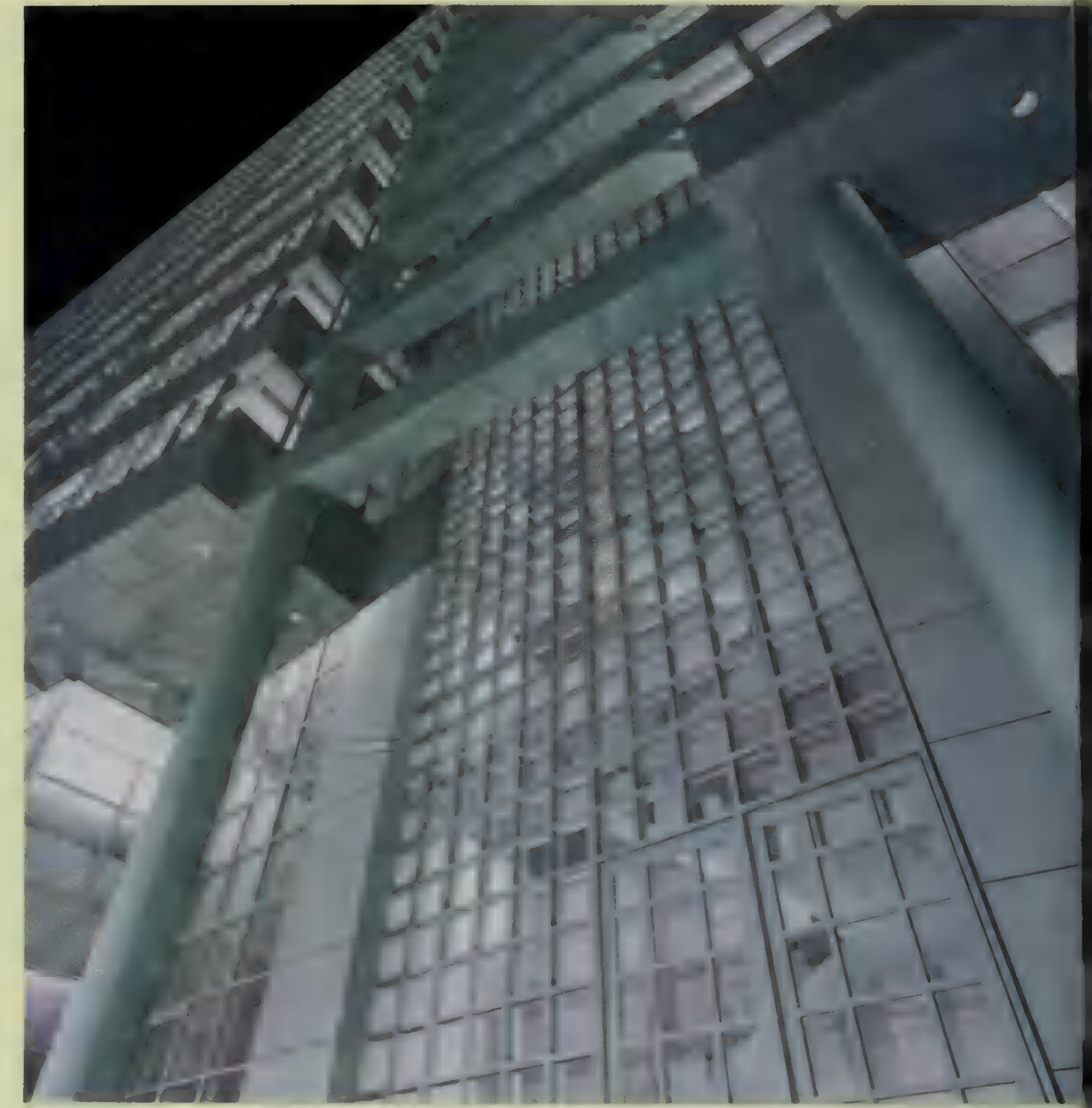
Second Prize: Projects of Richard Meier & Partners, Architects

Delineators: Greg Reaves and Timothy Collins Douglas

Among hard-copy entries, the jury quickly focused on several images submitted by the office of Richard Meier. The ones chosen to receive the second prize are the city hall and central library of The Hague, in Holland (1, right), an office tower in Houston (2), both delineated by Reaves, and the Euregio office and retail building in Basel, Switzerland (3), delineated by Douglas. The firm submitted three other images that the jury admired, among them a perspective section of the Museum of Ethnology, in Frankfurt am Main, Germany, also delineated by Reaves (4).

The entrants exploited the strengths inherent in the software, noted the jury, using easily rendered, flat, saturated colors to good effect in the Houston project, for example. The winners "shift gears when appropriate," Pearlman said, using lighting, reflectance, and luminosity effects with restraint in the Hague project. "This is what the computer can do for you," enthused Fernandez-Casteleiro. The winners received a $2,000 cash prize offered by RECORD.

Computer: IBM RS6000 Model 320H
Software: IBM Architecture and Engineering System Version 1 Modeling and Rendering programs
Output: Iris 3047 large-format ink-jet printer



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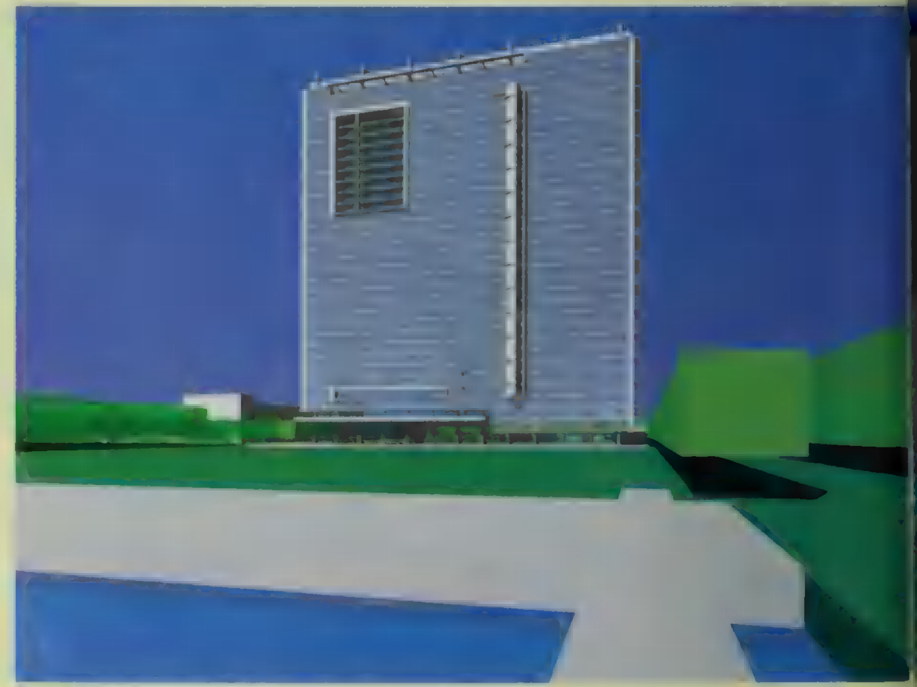

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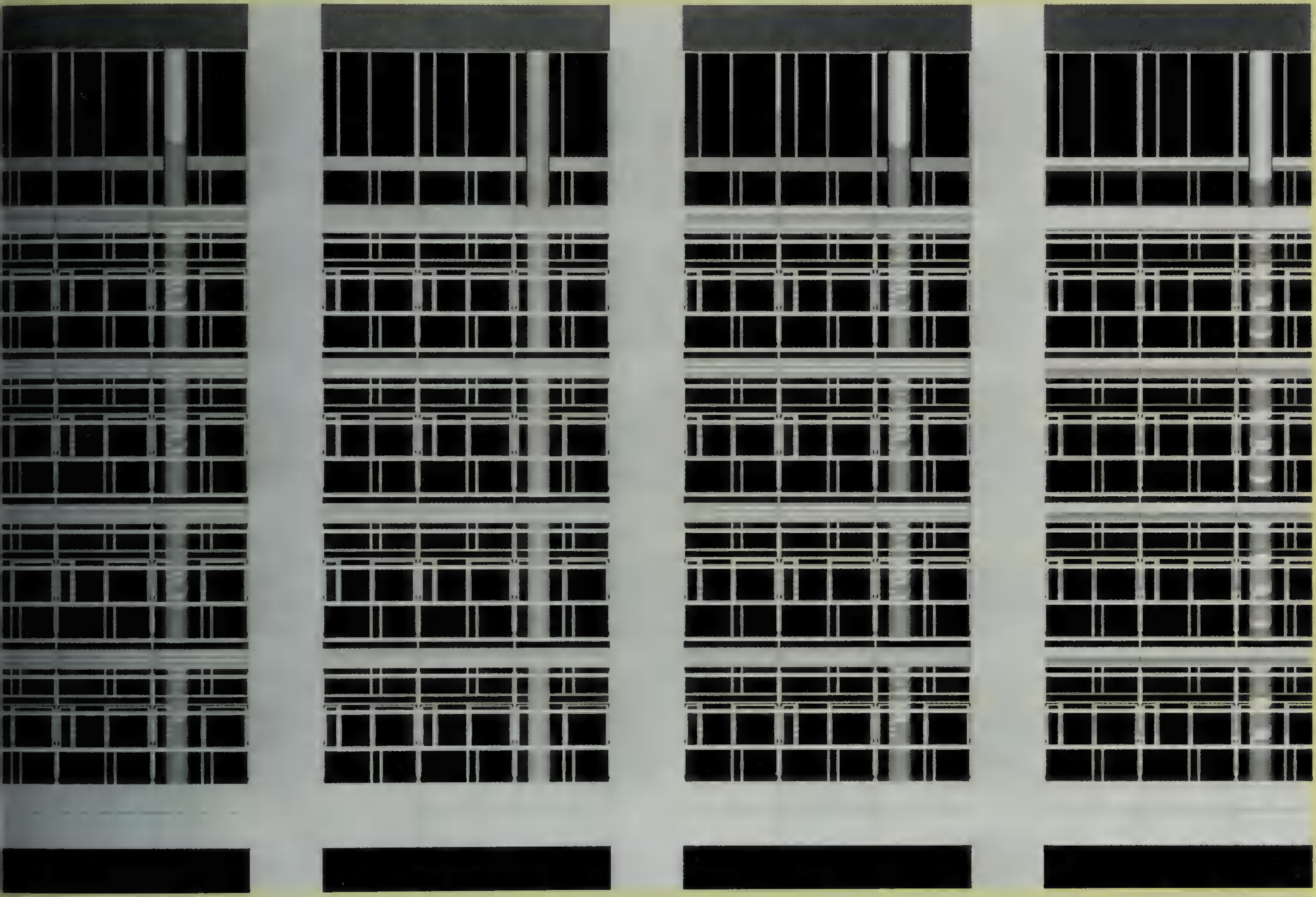
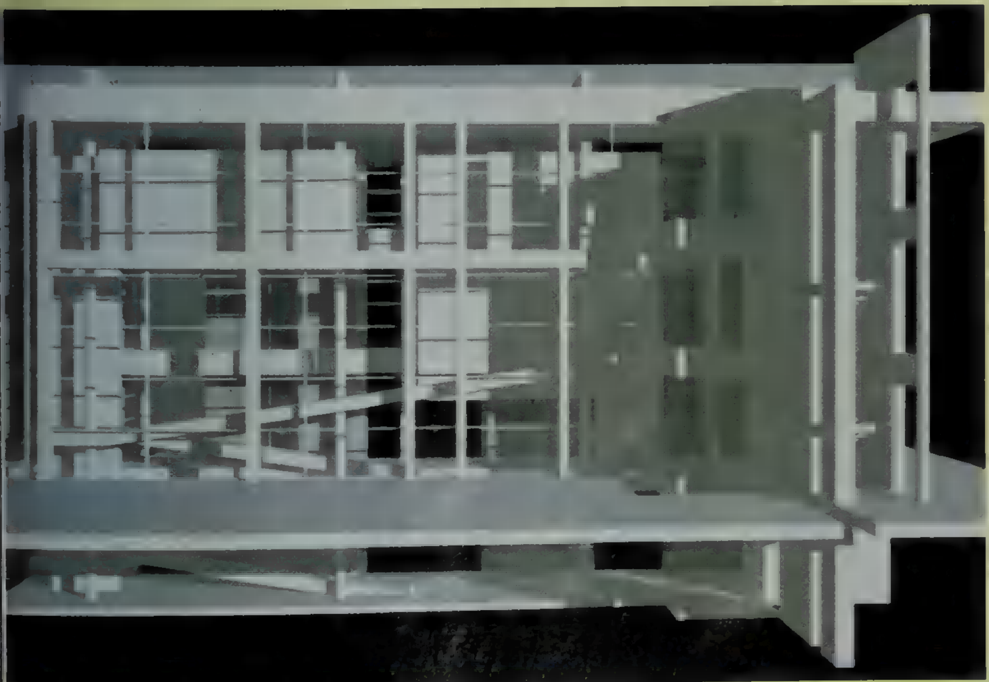




Beneath this entry's apparent whimsy, the jury found a serious exploration of the way both a "virtual" and an actual library might be designed in the near future.

Third Prize: Architecture as Information

Delineator: Drew Miller

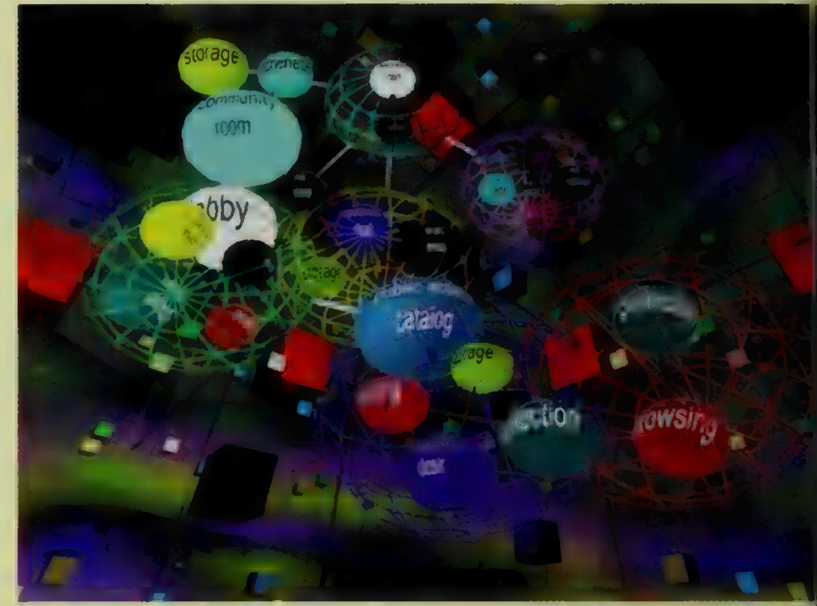
The entrant, a student at the Savannah (Ga.) College of Art and Design, submitted an animation proposing that virtual reality makes possible a three-dimensional "architecture" of information (1, right) through which the user can move.

Using a whimsical soundtrack and some tongue-in-cheek imagery, the animation takes the viewer from a barely conventional concept of a library (2) to a free-flowing spatial one, where a design project's physical site is not only shown on maps of various scales but evoked through historical association (3). The site rises out of the maps (4). Program elements are expressed as volumes in space (5), which reform themselves at ground (6).

Miller designed and studied his proposal in computer-model form (figure 5 shows a shaded mode; 6 adds a wire frame). Additional images were scanned or imported from Excel and manipulated in Photoshop. The maps, for example, were defined as materials and applied to surfaces.

"Here is someone who has totally fallen in love with computer animation," commented juror William Mitchell. "There's sheer joy in it." Juror Fernandez-Casteleiro wasn't sure what the architectural message was, but saw it as a different exercise: "What's to be lauded is not just that he went from the page to the model. He's asking, how can I tell a story?" Pearlman called it "a real leap, where the technology comes into its own." Miller won a $1,000 prize offered by RECORD. He worked with instructors Jim Goodlett and Fernando Munilla.
Computer: PC-type Pentium 90mhz notebook; PC-type 486-66mhz imaging station
Software: Datacad 6.0; Stereo-CAD Realtime (virtual-reality interactive application); Autodesk 3D Studio; Adobe Photoshop; Microsoft Word and Excel
Output: YEM CVS-980 Scan Rate Converter; Sony EVO-9650 Hi-8mm video deck; Xerox Color Fiery 5775 (prints)

[illegible]



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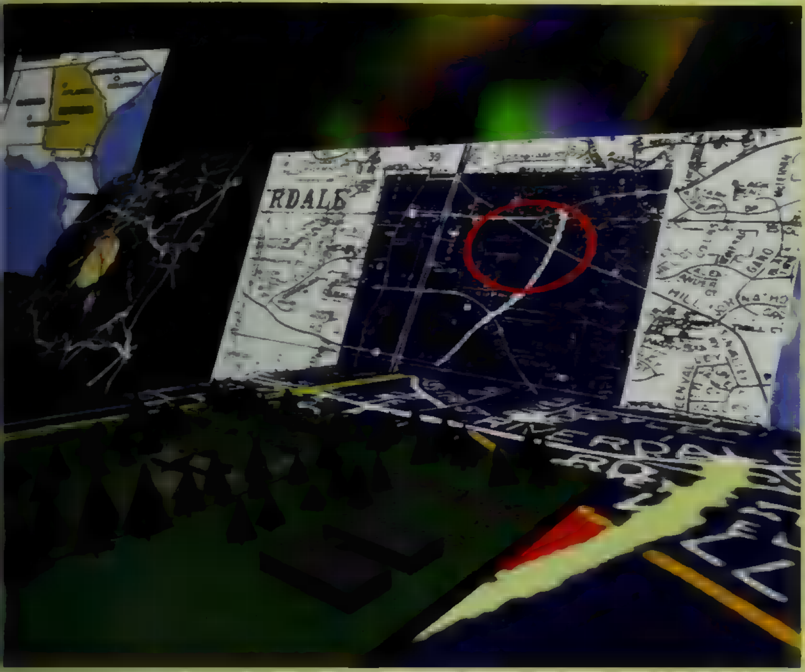

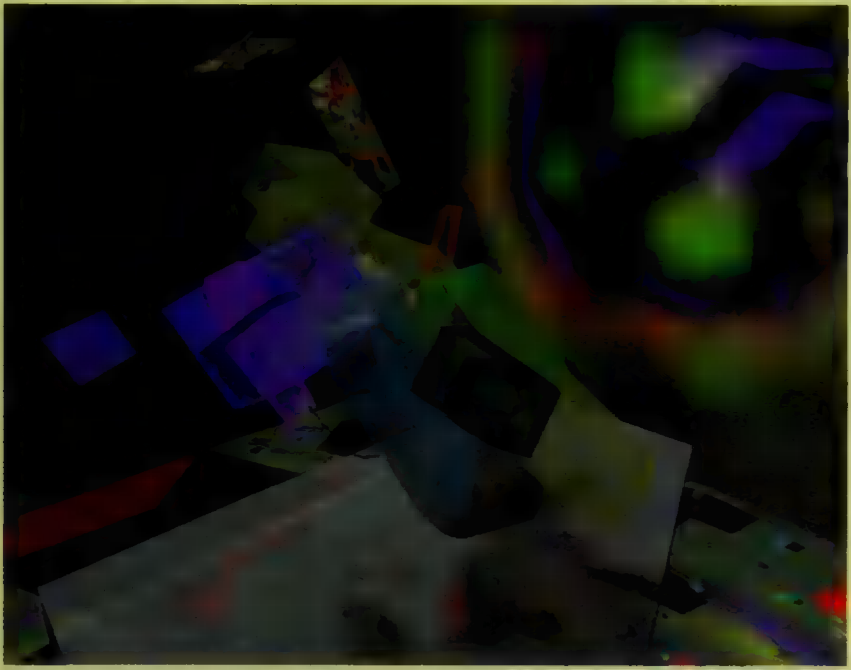

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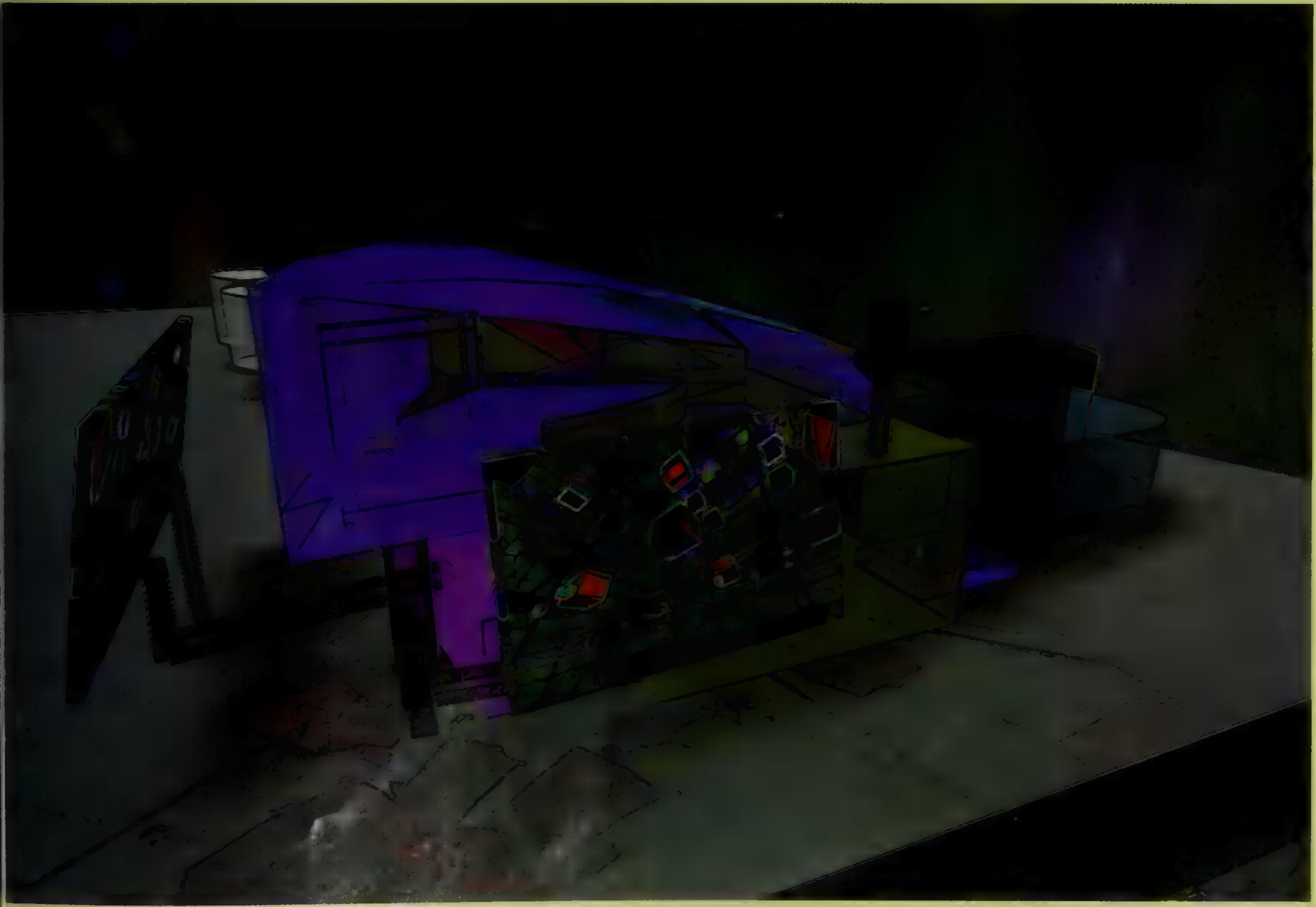
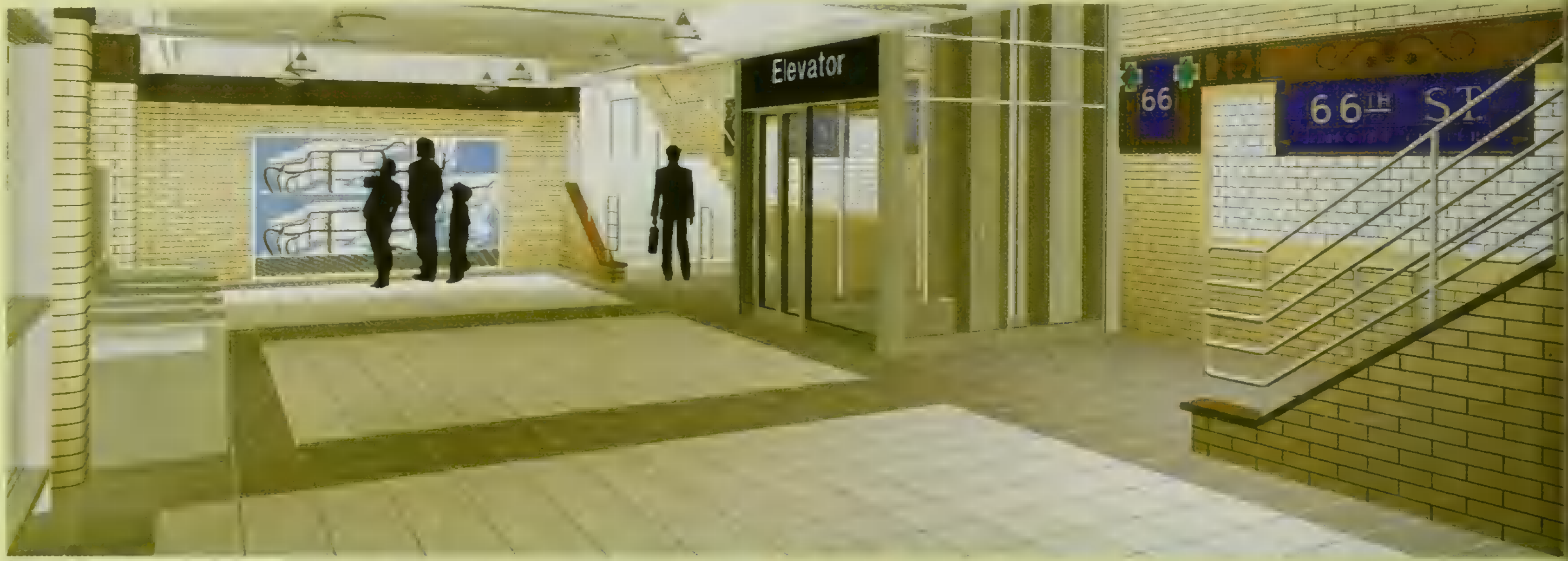


Two images below were permiated for clarity and technical finesse (1 and 2). Others represented a unique perspective on a project (3 and 4).



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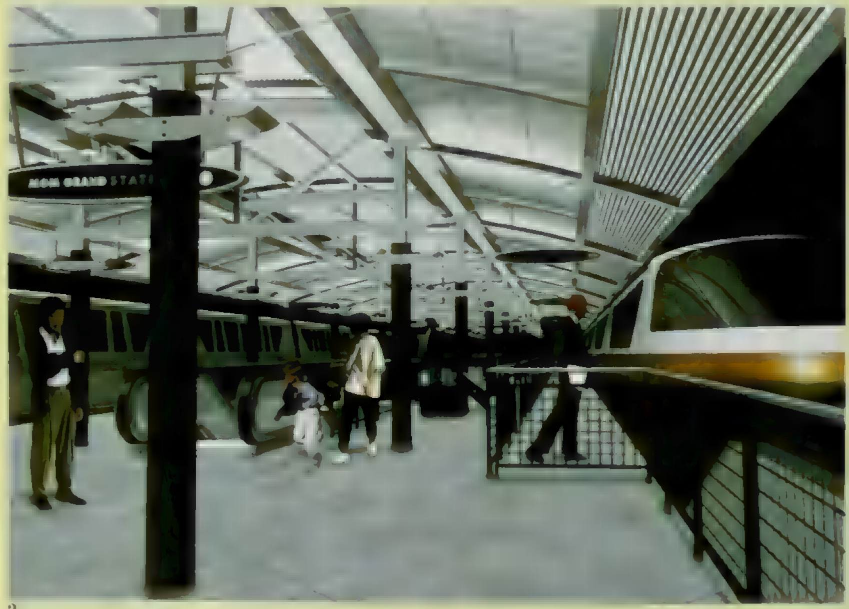

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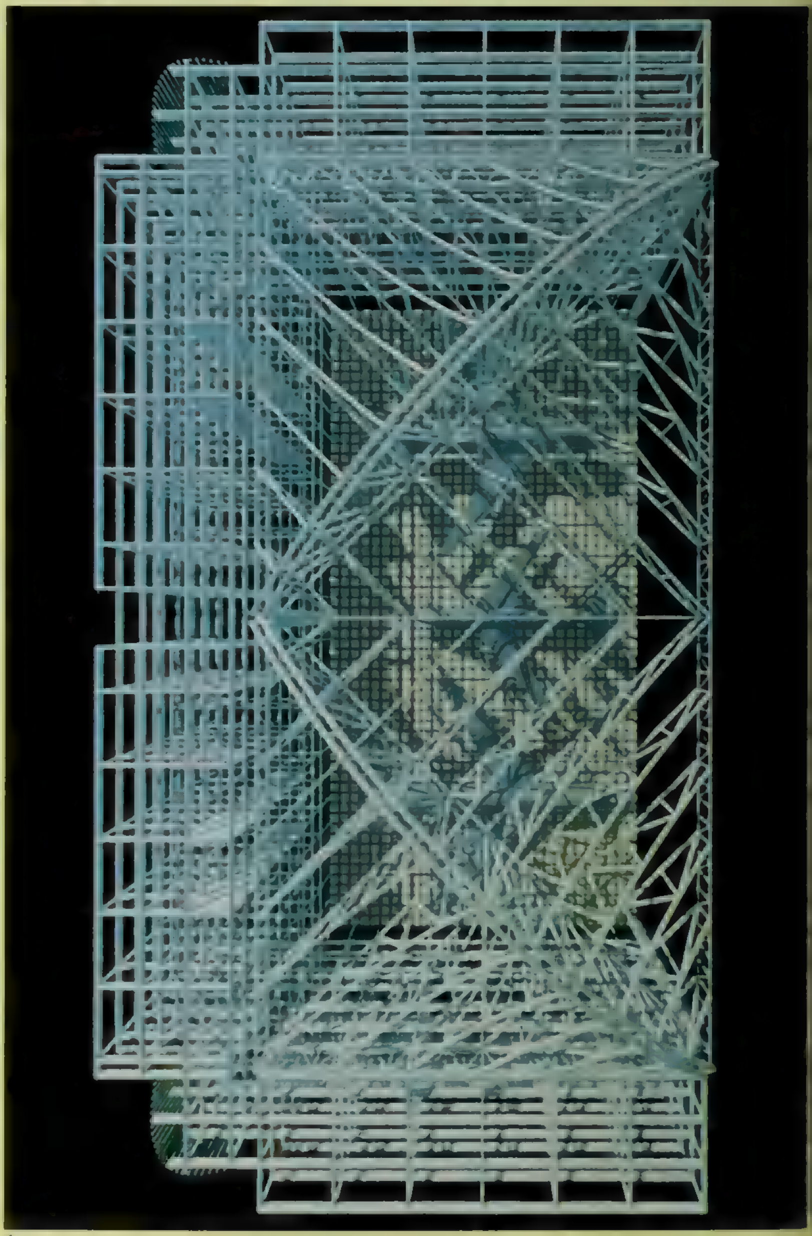


4

Cinematic Architects

As one of this year's Computer Delineation Awards jurors noted, current imaging programs certainly can create presentations that evoke a client "Wow!" But does the state of the hardware and software art obscure or illuminate the design? The jury came back to this question again and again in considering the 80 entries received. (A testimony to the information-dissemination power of the Internet, entrants submitted contenders from as far away as Iran and China.)

Given the rapidly changing technology, and architects' swiftness in adopting it, the lines between design technique and presentation mode are shifting. Thus the editors left to the jury the choice of judging criteria. And jurors set priorities that differed from those used last year. Serving were Manuel Fernandez-Casteleiro, principal in the New York City architecture firm of Parsons + Fernandez-Casteleiro; William Mitchell, dean of MIT's school of architecture and co-author of *Digital Design Media*, and Chee Pearlman, editor-in-chief of *I. D.* magazine, which has recently focused much of its coverage on the wired universe.

Jurors last year gave more weight to those entries that used the computer to develop and explore the design. This year, jurors looked more critically at whether each entry was successful as a *presentation* of the design. In considering each image, Chee Pearlman asked, "Is this more persuasive than conventional modes of imagery?"

Camera work criticized

The discussion of animated presentations was especially lively. The first prize was awarded in large part for the straightforwardness and lucidity of the animated presentation. Jurors felt the presentation describes the visitor experience in a way that overcomes the typical inability of an interested non-architect audience to understand plans or scale models. A surprising number of animations did not successfully illustrate the design, jurors felt, even when the delineator was clearly technically accomplished. "Architects are not cinematographers," commented William Mitchell, "but perhaps they need to become cinematographers." Some fly-through animations induced vertigo rather than understanding. Others had the viewer "virtually" banging into walls. The jury liked simple camera movements and animations that included pauses so that the room or building shown could be examined in an unhurried way.

Are some techniques "dangerous"?

Juror Manuel Fernandez-Casteleiro, principal of a design firm that uses computers for production but rarely for design, felt that many entries were "elegant, but cold." One presentation, prepared to promote a waterfront housing development, he found "dangerous." With its focus on yachts, sea planes, and sunsets rather than the architecture of the complex, he felt the delineators meant to dazzle rather than describe. Another presentation, which used many 3D library elements available on disk, caused him to comment: "The danger of the kit of parts is that it can limit the design. You better make your trees honey locusts because that's what's available."

Compared to last year's jury, this year's members were more sympathetic to projects that used computer tools to emulate traditional techniques. The monorail project (2, opposite), though admired, was thought almost *too* realistic.

With more schools offering computer imaging courses and tools, the awards attract many sophisticated student entries. This year, work of and for practicing architects won more often. Though the first prize was awarded to a pair of students, the project delineated was an actual proposal created by architects Stull & Lee. The second prize and all the honorable mentions came from architects' offices. Only the third-prize winner was a wholly speculative project created by a student, one who—unknown to the jury—was awarded a second prize last year.

The winners and additional entries will be exhibited at A/E/C Systems '95, the largest computer exhibition oriented to the design and construction industry. The show runs June 5-8 in Atlanta. Comments on the contest are welcomed by letter mail or e-mail (JSR Record@aol.com). *James S. Russell*

norable Mentions

ng with the main prize
ners, the jury commended
images opposite.

6th Street Subway
tion Rehabilitation,
York City
ant: Pete S. Bochek, PSB
ging, for Lee Harris Pomeroy
ociates, architect
puter:
RS6000 Model 530
ware: IBM Architecture and
ineering Series modeling and
lering program
put: Iris plotter

MGM/Bally's Monorail
tion
ant: Eric Hanson of Gensler
ociates, Santa Monica, Calif.
puter: Silicon Graphics Indy
ware: Alias Power
nator
put: Fujix photography

"Picture This," an animated
of the proposed North
olina State Museum of Art
ants: Henry Smith-Miller
Laurie Hawkinson of Smith-
er + Hawkinson, Architects.
aborators: Barbara Kruger,
nolas Quennel, Guy
denson, Jim Venturi, Noah
er, Selim Kober
puter: PC-type
ware: Autodesk AutoCAD
Autodesk 3D Studio
put: Video tape by Beta St
o; National Cave Art

Korean Airlines
rations Center, Seoul
ant: Scott Sarver of
lmore Owings & Merrill,
ago
puter: IBM RS6000
ware: IBM Architecture and
ineering Series modeling and
lering program
put: TGA file to slide ■

Bentley Adds Steam to the Drafting Engine; AutoDesk Poised to Follow

By Stephen S. Ross

MicroStation PowerDraft debuted at the end of March, along with a new marketing strategy. This software, 2D with some 3D functionality and optimized for production drafting, is reviewed in this issue. The strategy is important, both for short- and long-term.

Basically, Bentley is trying to assure that all the third-party vendors who provide add-ons for MicroStation allow entities created by the add-ons to retain their full image and intelligence in the final drawing and drawing database, even if the third-party product is not installed in the particular system being used to view the drawing.

To put it another way, the "smarts" move with the drawing, rather than being mainly in the CAD software. This is close to SOM, the so-called single-object model, being developed by software vendors in other disciplines. With SOM, when you link, say, a spreadsheet file to a word-processing document, and then reformat the spreadsheet file from inside the document, the file handles the reformatting without the spreadsheet software present.

Currently, with OLE (Microsoft's Object Linking and Embedding), if you try to reformat an Excel spreadsheet file inside Word, the spreadsheet fragment starts Excel running in the background. Excel is needed to do the reformatting.

All this functionality has a price. File sizes created with third-party add-ons will be much larger. The price is also much higher than Autodesk's low-end drafting package, LT ($1,950 versus $500), but half the price of AutoCAD 13 or MicroStation 5.0. Thus, Bentley explores the thinly populated "midrange" CAD area.

At presstime AutoDesk had not publicly closed its demands on third-party vendo had stated only that vendors could do as wished. But on April 18 Autodesk said it' cooperating with 11 vendors to standardi data across the construction industry's f spectrum, from site planning to facilities management. Speculation is strong that AutoDesk will go further and unveil a pla similar to Bentley's at the A/E/C System show in June.

Another sign of the times: with this issue supply Internet and World Wide Web addresses for vendors, where available. ■

MicroStation Power Draft 5.5

Vendor: Bentley Systems, Inc., 690 Pennsylvania Dr., Exton, Pa 19341-1136, 610-458-5000, fax 610/458-1060, 800/778-4274, family@bentley.com, http://www.bentley.com.

Price: $1,950.

Equipment required: IBM PC or compatible with 80386 CPU chip or higher (fast Pentium recommended), 8MB of random-access memory (16MB recommended), DOS 5.0, Windows NT 3.5 (32MB recommended for NT), Windows 3.1 or Windows for Workgroups 3.11. Use a mouse for the pointing device; digitizers are not directly supported.

Wow! In PowerDraft, Bentley Systems has packaged just about all the 2D functionality, and some 3D, of its flagship MicroStation 5.0 product with a super-fast, super production-oriented drafting engine and a spiffy, more Windows-standard interface (you can keep the old "Motif-style" interface if you wish). The DOS version looks like Windows, too. You get it all for half the price of 5.0.

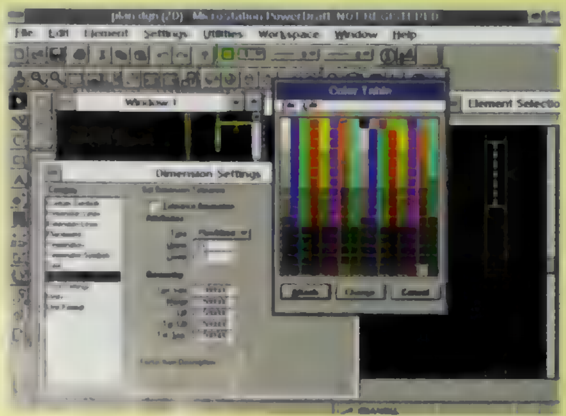
About the only thing more complicated about this version of MicroStation is its positioning in the Bentley product line. It's the first release, but is being called 5.5 because it is more advanced in some ways than MicroStation 5.0—and the full-featured top-of-the-line MicroStation will be getting a "5.5" facelift later this year. Remember, too, that Intergraph owns half of Bentley. While Intergraph is the largest third-party vendor of Bentley software, Bentley now has prime marketing responsibility. And Intergraph sells Autodesk products as well.

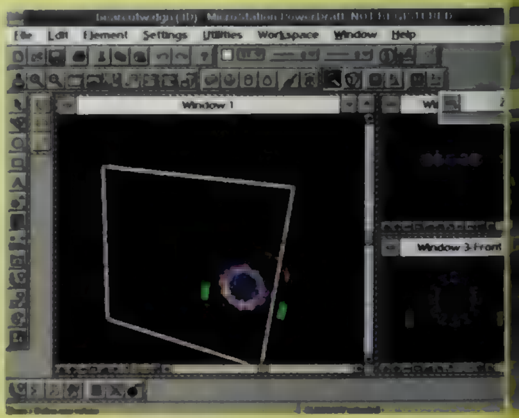
Although in general you cannot edit com 3D objects inside PowerDraft, add-ons us MDL (the MicroStation Development La guage) can. And you do get the 3D basics—simple solid objects and primitiv Thus, an office can easily mix PowerDraf MicroStation.

The interface features an AccuDraw win that uses single-keystroke commands an ability to set drawing points easily with t mouse, going back and forth between dia box and drawing (usually, in Windows, yo can't get at the drawing when a dialog bo open). You can have as many as eight dra views open at once; they all update as you draw in one.

Bentley claims that it requires significant fewer keystrokes to draw a typical object detail in PowerDraft than in AutoCAD 12

MicroStation P[illegible] [illegible]





*ith MicroStation Power Draft 5.5, the "smarts" move with the
awing rather than through CAD software. Thus, designs using
d-on software will remain in place, even on another computer.*

date: Visual CADD 1.2

looked at Numera's Visual CADD 1.0 last
and found it an inexpensive and sensible
ndows upgrade path for Generic CADD
rs—it reads and writes GenCADD files as
l as AutoCAD DWG and DXF, can be con-
ured with GenCADD commands, and sells
under $500. Version 1.2 is much faster and
rs more custom programming hooks
sual BASIC and Visual C++). The
nCADD parentage is not incidental—
mera was founded by GenCADD
elopers.

ntact Numera at 1501 Fourth Ave., Suite
0, Seattle, WA 98101, 206/622-2233, fax
/622-5382, CompuServe 74222,3031.
1 *on Reader Service Card*

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en only half as many. That's clearly so
en one compares unadorned versions of
h products. But AutoCAD 13 closes the
somewhat. Adding typical third-party
ducts to AutoCAD (we tried some com-
isons versus Eagle Point Advanced
hitecture on AutoCAD 12 and Softdesk
oArchitect on AutoCAD 12 and 13; it is
yet optimized specifically for 13) also
ses the gap somewhat.

vertheless, PowerDraft, all by itself, offers
nany productivity features at a lower
e that there's really no contest.

get 3D rendering (everything in Micro-
tion 5.0 except Phong shading), reference
s, library, database links, great dimension-
, lots of built-in printer drivers, AutoCAD
G and DXF (we did not have time to fully
t DWG compatibility), Windows clipboard
ctionality, custom linetypes, and more.

nuals: Three paperbacks—a thick refer-
e with tab guides, separate setup guide,
small tutorial.
e of use: There is a steep learning curve,
the trip is worth it. For instance, using
AccuDraw box well requires that you
morize single-keystroke commands. You
step through a process once (say, to draw
etail), while defining it as a macro.
or-trapping: Excellent, with an undo, too.
0 *on Reader Service Card*

SureTrak Project Manager For Windows

Vendor: Primavera Systems SureTrak Division, 1574 West 1700 South, Salt Lake City, Utah 84104, 801/973-1300, fax 801/973-9725.

Price: $695, including six-day a week free support (we have noted a street price of under $300). Upgrade $199.

Equipment required: IBM PC or compatible running Windows 3.1 or 3.11, 80386 CPU or higher (80486 or higher recommended), 4MB of RAM (8MB strongly recommended).

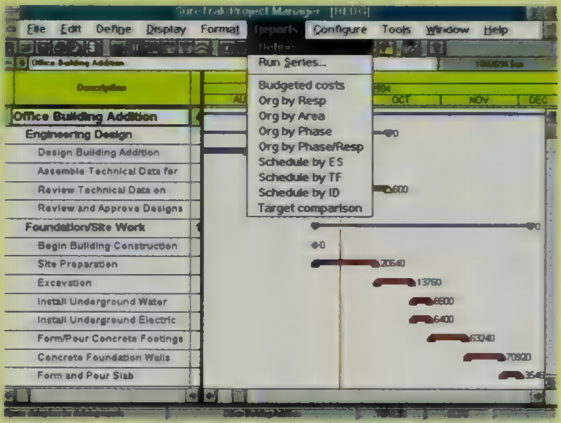
These days, good project-management software has to offer a range of reports for output, a clean on-screen interface that makes it easy to enter new data or adapt old project ideas, and reasonable speed.

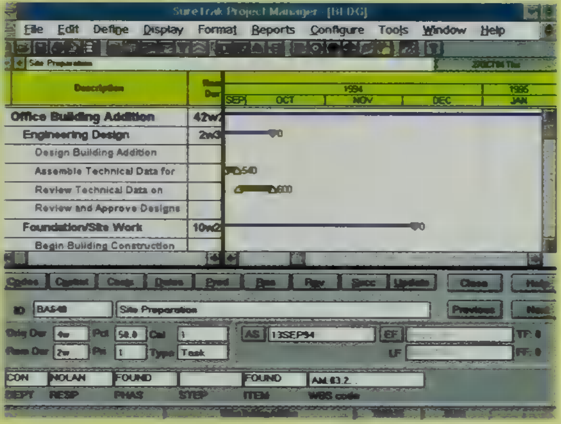
If you're building a gigantic project, or need better networking capability, Primavera offers Project Planner. But if your project is merely huge (up to 10,000 activities), and you don't need multiuser access, SureTrak is a great option. The two packages also can exchange files (SureTrak doesn't support some Project Planner features such as Resource Limit shifts, however). SureTrak also reads and writes Microsoft Project Planner files.

This package works well for setting up a plan, tracking progress, some billing, and doing what-if scenarios.

All but the largest offices should find it sized right for their needs.

Manual: One 663-page paperback reference and tutorial. Particularly good help file.
Ease-of-use: The best mid-range Windows project-management package we've seen.
Error-trapping: Good. It is hard to destroy data. There's also a flexible automatic save. If you copy activities from another project and the activity numbers match something in the target project, you will be prompted to modify the numbers.
302 *on Reader Service Card*




SureTrak Project Manager - [BLDG]
File Edit Define Display Format Reports Configure Tools Window Help
Site Preparation
Description
Office Building Addition
Engineering Design
Design Building Addition
Assemble Technical Data for
Review Technical Data on
Review and Approve Designs
Foundation/Site Work
Begin Building Construction
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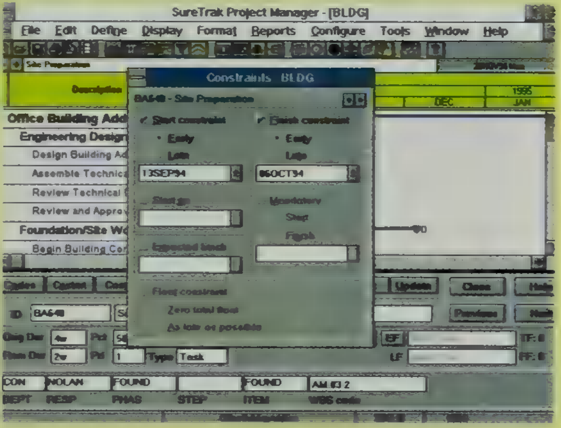


Top: Primavera's sleeker project-management model, SureTrak, works well setting up a work plan. Gantt chart with activities also on screen. Note report pull-down menu; there are many custom reports built in.

Center: Clicking on any activity opens the data section covering the lower half of this screen.

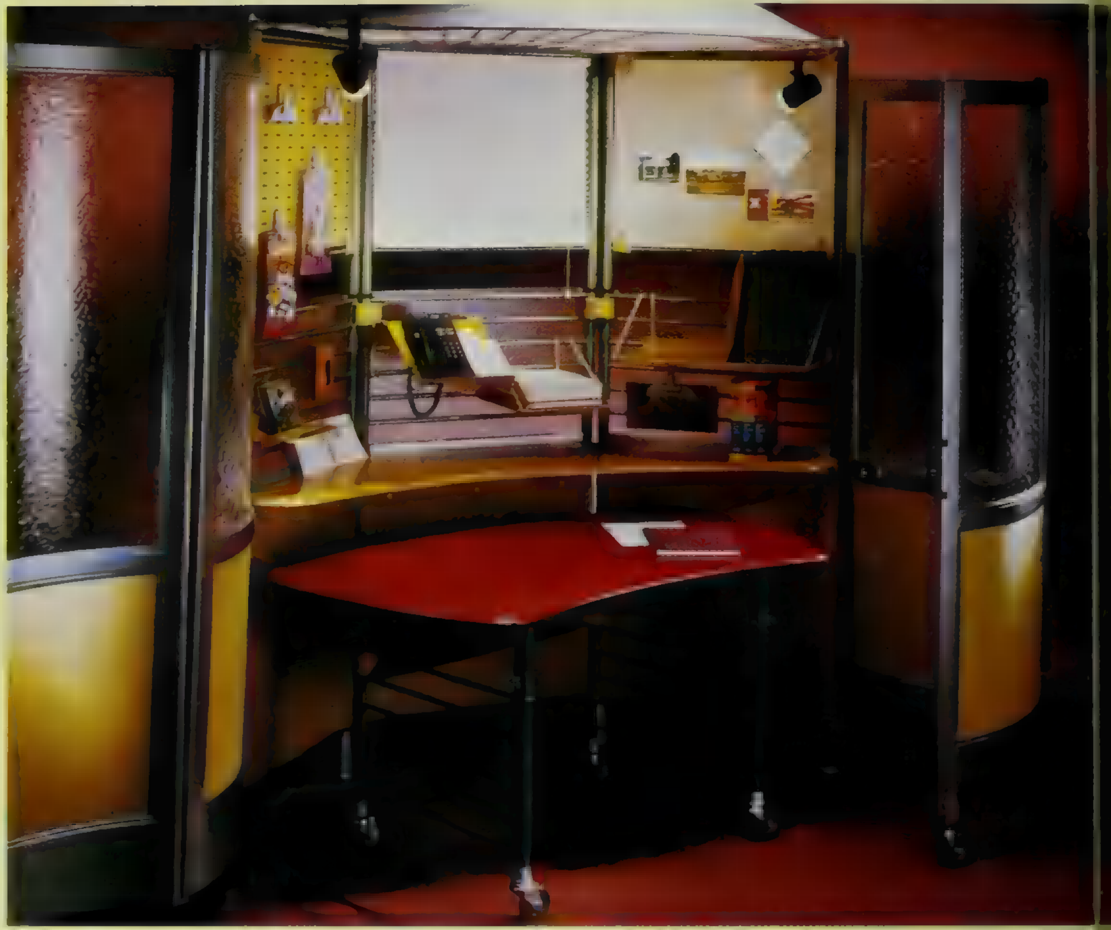
Bottom: You can update constraints at will.

Teamwork Kit-of-Parts

303. On a roll

Haworth will show a unique group of officing components at NEOCON next month. Consisting of mobile work surfaces, rolling files, and technology-support units collectively called Crossings, there is no hierarchy to the line—no bigger desk for managerial types. These pieces are for team players who interact frequently with their co-workers: advertising agencies, product-engineering or software groups, designers, or graphics professionals whose work styles call for conferences or computer-based show-and-tells as well as task-focused desk work: who "balance individual effort with collaboration."

An individual Crossings work center might be semi-enclosed by a "fence" of three sliding glazed panels (1), dividing a stained medium-density fiberboard "work plane" from an open-plan common conferencing space. These doors can fold in to totally surround the work area for security when not in use. Metal organizer shelves or file bins hang on the rungs bracing the desk (2). For computer-intensive functions, there is a fully adjustable keyboard tray with bilateral mousing tablets (3). Materials include hammered-metal finishes and ladder-like structures reminiscent of Frank Lloyd Wright's desk for the Johnson Wax building. The plan sketches computer carrels clustered for an ad hoc conference, with the kidney-shaped work surfaces shielded by the glazed panels; photo (4) gives an idea of the range of storage, filing, and computer-support options offered—all mobile. Haworth, Inc., Holland, Mich. ■



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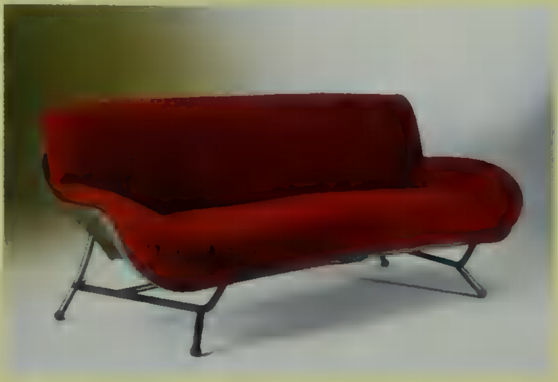
. Expressive
simo Iosa Ghini's first designs for
sina are his Leggero (Light) sofa (pic-
d), with a tubular-steel frame clearly
layed, and the Formale model, which has
ic skirts concealing the structure. The
"platform," built like a tent with
lura nylon stretched tight by stainless-
l turnbuckles, holds fabric-covered
nded-polyurethane-foam cushions.
sina USA, Inc., Huntington Station, N.Y.

. Legacy
igned by Charles Pfister towards the end
e '80s, but never manufactured before
leath in 1990, his Profile lounge collection
w being produced and brought to market
eiger Brickel. The pieces—a club chair,
le-end seats with or without arms, and
and three-seat sofas—are differentiated
rm treatment (either straight-from-the-
or slanted, as shown) but share a
bulary of crisp details and not-over-
fed seat cushions. Upholstery options
de leather and a range of new fabrics
gned for Geiger Brickel by Jane
bach. Pricing is described as "moder-
' 800/444-8812. Geiger Brickel, Atlanta.

. Architectural background
Kordak used his experience in design-
architectural interiors on his new Rio
ge seating: the pieces are large-scaled
inely detailed. For example, the Wing
-up (306b), with a generous seat-pan
h, conveys just the sense of a traditional
he-fire armchair by the cant to its seat
and the set and flair of its tapered legs.
333-9988. Charles McMurray Designs,
rlotte, N.C.

. Metro meets Memphis
York architects Peter Stamberg and
Aferiat collaborated on colorful chairs,
s, and three-seat lounges for KnollStudio
offer several customizing options:
ovable accessory shelves of stained wood,
ht paint finishes on the tubular legs, and
degrees of squishiness for the seat, back,
side cushions. 800/445-5045. The Knoll
up, New York City. ■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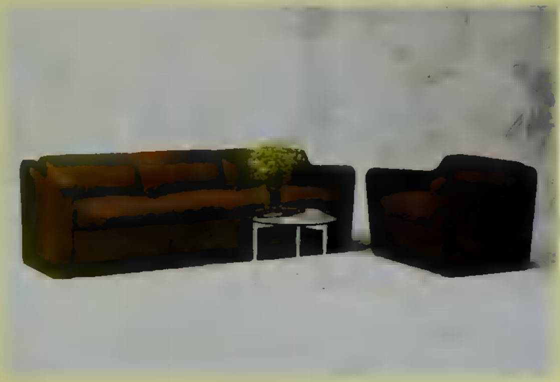
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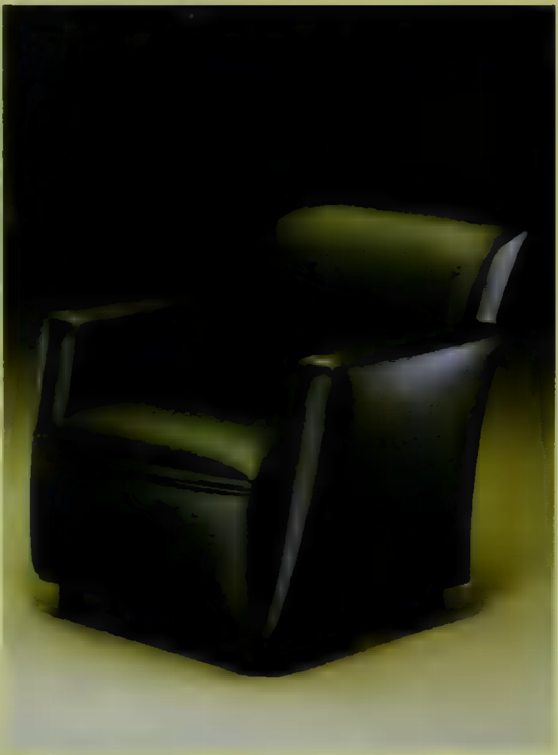
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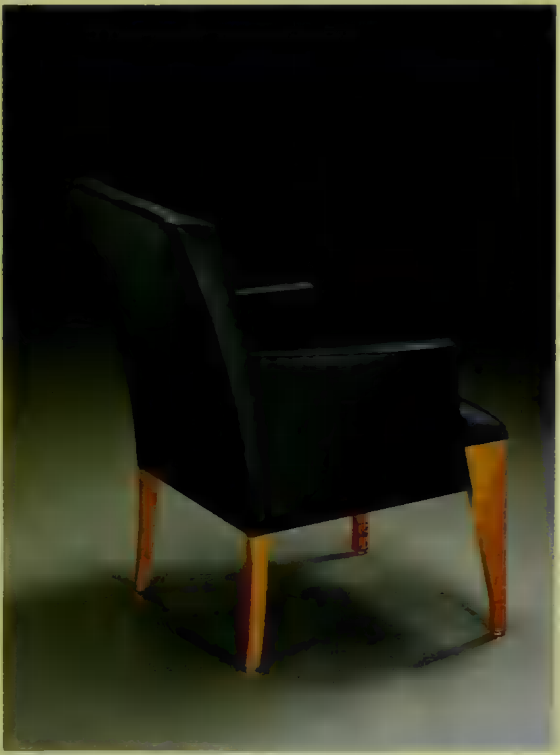
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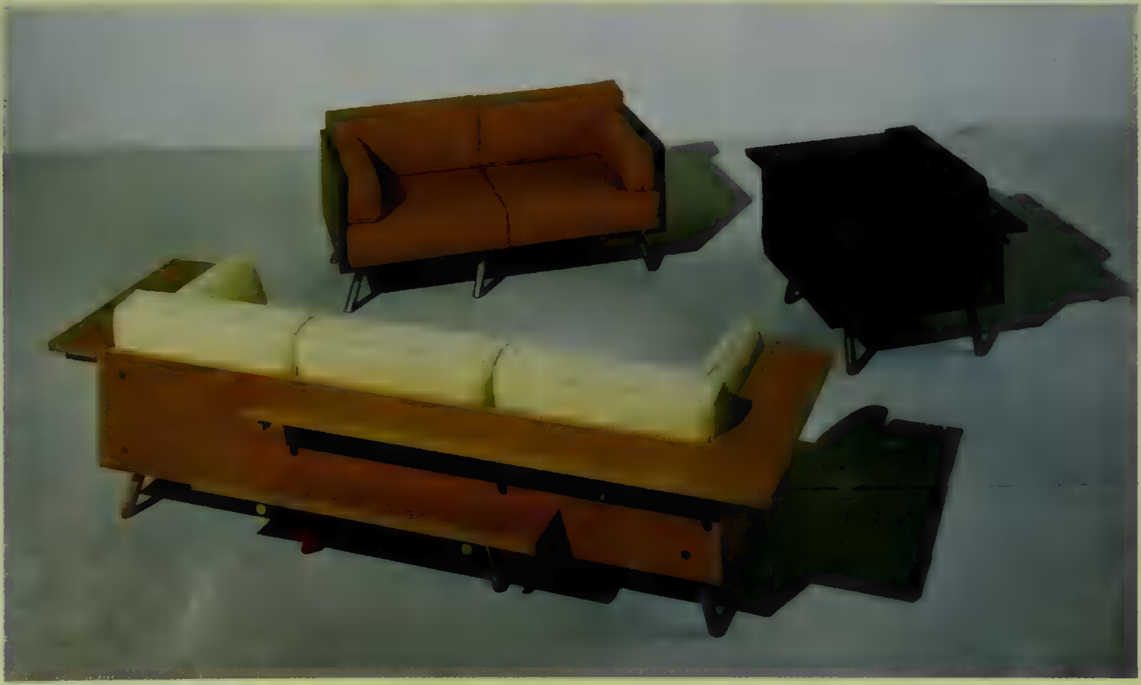
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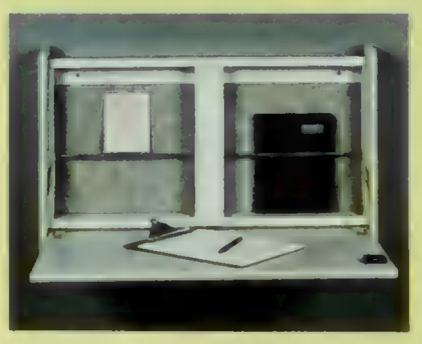
308. High-style VCT
An expanded color range offered in commercial vinyl-composition tile now includes stylish colors like eggplant, silver pine, hyacinth, and periwinkle. The palette, said to be the largest available, comes in 12 multifleck patterns and 48 tone-on-tone shades. Sample program for architects and designers. 609/935-3000. Mannington Commercial, Salem, N.J.

309. Nylon tapestries
Nuts & Bolts upholsteries, designed by Susan Lyons in bleach-resistant Zeftron 200 solution-dyed yarn, are said to provide decorative pattern and weave options not formerly available in fabrics that could meet the abrasion-resistance and cleaning requirements of healthcare and hospitality environments. Swatches available. 718/533-2291. DesignTex, Woodside, N.Y.



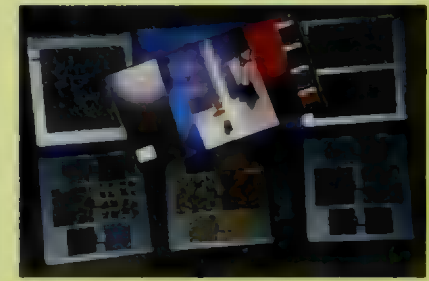
310. Wall-mounted desk
A versatile foldout writing desk can be hung where needed in factory, hospital, or office. Less than 4-in. deep when closed, the 29-in.-wide writing surface folds down to the horizontal at the touch of a finger, and folds up automatically when weight is removed. Made of laminate with rounded edges, with a restraining bar that holds notebooks and forms. 800/638-4111. LUI Corp., Baltimore.

311. Fire-resistant shades
Available in five colors, Symphony Metro double-honeycomb shades meet State of California, Department of Transportation, and NFPA 701 standards for flame-retardant window coverings. Shades are said to have excellent thermal-insulating values, good light diffusion, and a single-exterior-color option. 800/843-4151. Comfortex Corp., Watervliet, N.Y.

312. Line extension
The concave back and wedge-sha seat characteristic of the original Vik-ter chair (pictured) has been translated into an expanded line institutional and office seating. Though lighter in weight and less expensive, the new stacking chair have identical maple seats and ba stained in Matisse-inspired colors 718/786-8600. Dakota Jackson, In Long Island City, N.Y.

313. Privacy with a view
Levolor's new Sheerview blinds h a pattern of pin holes in the meta slats that permits 6 percent of the daylight and an external view to f through a fully closed blind witho compromising glare control and energy efficiency. Offered as an option on both Mark 1 and Rivier style blinds. 800/222-8830. Levolo Contract, Greensboro, N.C.

314. Versatile furnishings
Confair components have been designed to work as flexible confe ence furnishings—lecterns, meet tables, monitor and A-V carts, ch holders—that can roll, fold, and stack. The table pictured, designe by Andreas Stoeriko, folds in half storage and seats eight. 800/249-5 Wilkhahn, Inc., New York City.



315. Managed modular
A new patterned-carpet collectio incorporating design influences fr Europe, America, and the Far Ea Affiniti 18-in. modular carpeting comes in over 60 geometric and fi rative shapes, shadows, textures, botanical patterns that give a mo lithic appearance to the installed floor. Complete sampling program 706/880-5511. Milliken Commerci Markets, LaGrange, Ga.

Short takes

Glass to glass. Schuller International announced that its fiberglass building-insulation products are now made with at least 25 percent recycled glass, retrieved from melted-down [illegible] and glass scrap.

[illegible] glass. The latest glass [illegible] turing, treatment, and [illegible] technologies, for both [illegible] architectural [illegible] showcased at the [illegible] Association Show May [illegible] at the Georgia World Congress Center in Atlanta. Phone 703/442-4890 for exhibit and seminar information.

Cutting-edge tile maker.
American Marazzi Tile, headquartered in Sunnyvale, Tex., outside of Dallas, hasconverted its entire tile-manufacturing process to isostataic pressing. Using new Italian equipment developed to make porcelain tile, the hydraulic press is said to insure much greater consistency in color, shape, and size from tile to tile, and to permit a greater range of s face characteristics in the finished product.

Masonry design guide.
The Thermal Mass Handbook: Co crete and Masonry Design Provis Using ASHRAE/IES 90.1-1989 shows architects how to take adva tage of thermal mass in meeting t provisions of the Energy Act of 19 National Concrete Masonry Assn Herndon, Va. 22070; 703/713-1900

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SAFTI BULLETIN

SAFETY AND FIRE TECHNOLOGY INFORMATION

SUPERLITE II-45 MINUTE FIRE AND SAFETY RATED GLAZING

Windows Almost 4 Times Larger

With SuperLite, architects are designing larger, more expansive viewing areas. SuperLite II-45 is available in extremely large sizes – single lites as large as 102" x 48" or 4,896 sq. in. – as opposed to the 1,296 sq. in. size limit with wired glass.

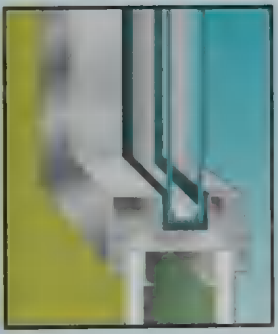
Full Lite 45-Minute Doors

SuperLite II-45 minute glazing is now available in a full vision steel frame fire doors. Ceco Door Products has introduced a new door with the largest wireless 45 minute glazed opening available. They are rated and listed by Warnock Hersey International. Fully glazed doors are available as large as 4'x9' with up to 2,880 sq. in. of SuperLite II-45 glazing.

The Highest Safety and Fire Protection Available in the U.S.

SuperLite II door and frame systems meet 45 minute fire and hose stream testing as well the impact-safety requirements for hazardous locations as required by CPSR 16, CFR 1201 category II, and ANSI Z97.1. The gel-filled makeup of SuperLite II offers extreme fire protection and is the only 45 minute glazing which protects against the hazards of radiant heat.

hitects are no longer ricted to design limita- s once placed on fire d glazed openings. e glass is incorporated designs than ever re thanks to wireless erLite. This clear fire d safety glazing allows que design capabilities found with other fire d glazing products.



Competitively Priced

SuperLite II-45 glazing is a cost effective way to incorporate fully glazed doors and large expansive windows requiring 45 minute fire protection. Designed for use in standard hollow metal systems eliminates requirements for proprietary framing.

Numerous Design Options

Designers can specify various tints, patterns, insulating and sound makeups. SuperLite II has excellent sound reduction characteristics with the highest STC rating of any fire rated glazing on the market.

MBRIDGE SCHOOLS DUCE GLASS BREAKAGE TH SUPERLITE

Cambridge Massachusetts Public ool District is located in an urban ing where children are active and risk of accidents is high. As in most ools, recurring breakage of wired s was a problem for the school dis- . Urban school officials throughout U.S. report that many school dis- s spend between $50,000-$100,000 ually in reglazing costs.

SuperLite Stands Up to the Test

A pilot program in which the Cambridge public school district replaced wired glass with clear, wireless SuperLite in two of its schools has proven successful. Four months after the replacement glass was installed there was no breakage of SuperLite. Up to ten times stronger than wired glass, SuperLite withstood the rigors of day to day school activities in both schools.

continued on page 4...

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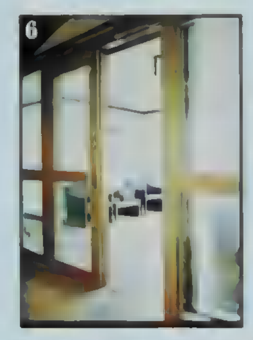
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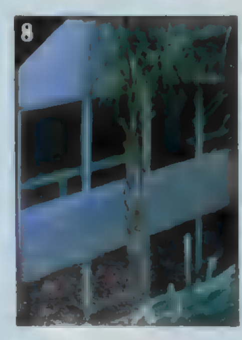
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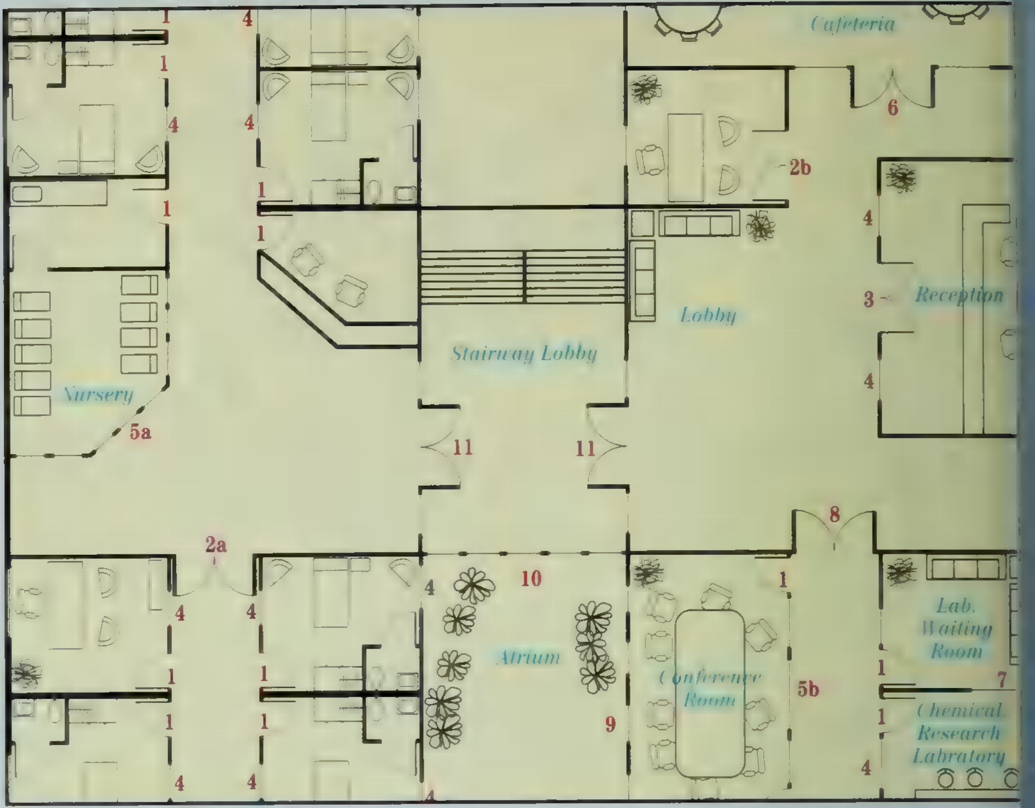

Where to Use SuperLite

Above is a hypothetical hospital floor plan with SuperLite products designed i various fire rated openings. The photographs show examples of installation o SuperLite glazing*.

The chart indicates the SuperLite (SL) products specified to meet the variou wall ratings and applications shown in the floor plan. This is only a general inter pretation of the building codes; codes vary by jurisdiction and confirmation of rat ings by local code officials is required.

#	GLAZING	WALL RATING	OPENING RATING	SITUATIONS
1	SL I	One Hour Corridor	20 min. Door**	Wood doors accessing patient rooms and offices
2	SL II-20	" "	20 min. Door**	French wood door & sidelite assembly: a) entering one hour corridor b) to an office
3	SL I	" "	20 min. Door**	Hollow metal door to offices
4	SL II-45	" "	45 min. Window	Windows in offices and patient rooms (limited to 25% of wall area)
5	SL II-60	One Hour Occupancy Separation	60 min. Window/Wall	Openings exceeding 25% of wall area: a) infant nursery b) conference room
6	SL II-60	" "	60 min. Door	Cafeteria occupancy separation from general hospital occupancy
7	SL II-60	" "	60 min. Window/Wall	Separating research lab from waiting room
8	SL II-90	Two Hour Occupancy	90 min. Window/Wall Separation	Separation of lab occupancy from atrium/general hospital occupancy
9	SL II-90	" "	90 min. Door	Separating lab from general occupancy
10	SL II-90	Two Hour Stairway Enclosure	90 min. Window/Wall	Opening along a 2 hour stairway enclosure
11	SL II-90	" "	90 min. Door	Access to stairwell

*Actual ratings may differ from those sited in floor plan. ** Conformance to safety glazing standards required.

EW! SUPERLITE VISION LITE KITS

rchitects are specifying SuperLite ision Lite Kits to obtain wireless full ision in fire rated doors. SuperLite LK's are glazed with SuperLite I for 20 inute applications *or* SuperLite II-45 r 45 minute fire ratings.

ay Good-By to Wired Glass

uperLite VLK's are available in sizes s large as 2,304 sq. in. for full vision re doors, far exceeding the 1,296 sq. . limitation of wired glass. SuperLite LK's are the preferred alternative to equently breaking and institutional oking wired glass. SuperLite glazing up to 10 times more resistant to reakage than wired glass and meets e most stringent Federal and Model ode safety glazing requirements. uperLite VLK's are labeled by War-ock Hersey International for use in ted wood or steel doors.

SuperLite I ™

eceived with Great Enthusiasm

he first clear fire and safety rated lass made in the United States has een received with great enthusiasm. uperLite I allows designers to achieve rger viewing areas unobstructed by gly wires. SuperLite I is designed to eplace existing wired glass and for use here high impact performance and 0/30 minute fire ratings are required.

eets Highest Safety Standards

he Safety Glazing Certification Coun-il has certified SuperLite I to the ighest CPSC and Model Building Code afety impact standards required for se in fully glazed doors and sidelites Cat. II). Architects find it suitable here superior impact performance is equired because it is up to 10 times tronger than wired glass. SuperLite I 1/4" thick for simple installation into tandard doors and sidelites (also vailable in 1/2").

he Complete Solution for Architects

uperLite I has excellent optics, 20/30 inute fire ratings, competitive pricing nd high impact safety performance. nd it is manufactured in the U.S. with hort lead times.

(ADVERTISEMENT)

LAMINATED FIRELITE: WHAT IS IT AND WHERE DID IT GO?

"Laminated FireLite" *is not* a fire rated glazing material; it *is* a piece of annealed glass laminated to a piece of FireLite using a PVB interlayer. Technical Glass Products (TGP), the distributor, began selling Laminated FireLite in safety rated applications because regular FireLite does not meet safety glazing requirements – it breaks like annealed glass. Non-laminated FireLite may carry a UL and WHI label for certain uses, but once it is laminated the label is void.

What Does a Label Mean?

A certification label on fire rated glass signifies that the product meets fire test standards required by building codes. Certification agencies have strict guidelines and follow-up procedures to ensure the integrity of the product and appropriate use of the listing mark. If the listed product is altered from the makeup which was tested and certified the label is void.

Laminated FireLite Isn't Labeled.

Laminated FireLite is not rated by UL or WHI but has been sold as a labeled product. In '94 legal proceedings brought to halt the sale of mislabeled Laminated FireLite, TGP admitted to a federal court that it sold Laminated FireLite with UL and WHI labels. Fire test data before that Court, showed that the product flamed during testing, thus failing fire test standards. TGP's literature downplays the flammability as "temporary flame-up". The Court however, watched a video of the fire test, and described the flame-up as one which *"goes on for a long period of time…"*. Although the Court remarked that "temporary" may be a subjective term, *"…if you watched the video you have got to have real interesting reaction to what you mean by "temporary"…"* In a "tongue-in-cheek" response to TGP's suggestion that the term is relative, the Court added, *"Maybe so; Yellowstone is only temporary"*.

Mislabeling Has Occurred.

Unfortunately, mislabeling does occur as evidenced by the '94 legal proceedings involving Laminated FireLite. Despite certification agency procedures intended to prevent mislabeling, as much as an entire year's production of PVB Laminated FireLite may have been mislabeled and installed in fire rated locations.

Mislabeling Affects Public Safety.

In the case of Laminated FireLite, a federal judge noted why mislabeling is a public safety concern:

"…Here are our products out that implicate public safety and they were mislabeled and installed"

"…What I am kind of concerned about is we've got something out there that's not fire-rated and the people thought what they put in was fire-rated"

Because of those safety concerns, it is critical that certification agencies strictly enforce proper labeling.

Testing Agency Responsibility.

Certification agencies have the authority to halt mislabeling practices and the responsibility to notify the affected public and take adequate corrective action. UL and WHI were advised of Laminated FireLite mislabeling. O'Keeffe's asked both agencies what action has been taken to alert building owners, contractors, and architects, but as of this printing has not received a response.

The purpose of code fire test standards is to protect public safety. Sale of mislabeled products such as Laminated FireLite jeopardizes that safety and damages the integrity of all fire protection materials. If mislabeling practices are tolerated the certification label is worthless. It is the responsibility of the testing laboratories to safeguard the public and notifying those affected by widespread mislabeling violations.

Next: Is FireLite Plus really a Plus?

(ADVERTISEMENT)

CUSTOM WOOD GPX FRAMING CREATED FOR UNIVERSITY EXECUTIVE OFFICES

GLASSPROTEX (GPX) Framing Systems custom frame finishes, decorative wood and ornamental metal covers combined with the myriad of SuperLite glazing options give an architect unlimited design possibilities in fire and safety rated walls and doors. The GPX System allows designers to clad the framing assembly with a variety of different materials. Copper, stainless steel, wood veneer, brass and solid wood are just some of the cover options.

GPX: The Solution for University of Washington

Barnett Schorr Architects in Seattle found their design solution with the GPX SuperLite Framing System for a high profile corridor leading to the executive offices in the Administration Building at the University of Washington. William Renaud, AIA, served as Project Manager.

Besides meeting 90 minute fire wall standards using SuperLite glazing for the doors and sidelites, the University design called for "custom shaped" solid oak covers applied to the framing members.

In addition, the architect required specific aesthetic features for the corridor: the door leafs were required to be held in a *"180° normally open position"*; the door leaf vertical and horizontal mullions *"when fully in the held open position"* must align precisely with the fixed sidelite mullions adjacent to the door leafs.

In order to align the fixed and operable mullion frames, 1-1/2" offset pivots were required for the GPX door leaf hardware. The 1-1/2" pivots were also required to allow the thick solid wood covers on the door leafs to clear the stationary sidelite wood covers. Custom extended arms were also required for the overhead closures.

A unique method of mocking up the customized GPX framing components allowed th specifiers to verify which hardware and system modificatio were required for the GPX frame, the solid wood covers ar the hardware.

Once again, the proven and reliable GPX/SuperLite Syste has enabled designers to combine aesthetics with the co requirement parameters for a beautifully designed space.

REDUCE GLASS BREAKAGE . . . *continued from page 1*

Priced Low for School Budgets

As a result of the successful four-month pilot program, the Cambridge school district is now considering replacing wired glass with SuperLite in all of its schools. SuperLite's competitive price, coupled with its breakage resistance will save the school district money in the long run.

Improved Visibility for Teachers

At the Cambridge public schools, the teachers and administrators like the large vision areas that clear SuperLite provides. The increased visual security allows them to more effectively manage the classrooms. SuperLite is available in both wood and steel doors with a glass size as large as 2,792 sq. in. and in sidelites up to 3,965 sq. in. – three times the size of standard wired glass.

Made in the USA

SuperLite I is the only clear fire rated safety glass made in the United States and offers quick delivery and easy installation. Architects and facility managers are specifying SuperLite for schools, hospitals, correctional facilities, and other institutions [illegible] more human impact protection than wire glass.

SAFTI TRADESHOW SCHEDULE

For a first hand look at SuperLite fire and safety rated glazing and GPX Framing Systems, stop by SAFTI's booth at the following trade shows:

- National Glass Assoc.
  Booth #F1617
  Atlanta, GA, May 18-21
- National Fire Protection Association, Booth #146
  Denver, CO, May 22-24
- Construction Specifications Institute
  Booth #2057/2059
  Minneapolis, MI
  June 23-25
- Glass Expo West
  Booth #434
  Long Beach, CA
  August 18-19
- International Conference of Building Officials (ICBO)
  Las Vegas, NV, Sept. 10-12
- Building Officials Code Administrators (BOCA)
  Kansas City, MO
  Sept. 17-20

If you cannot see us at one of these shows, perhaps we could arrange a demonstration for your local professional organization or firm. Call Stacy Westhoff at 800-822-2088 ext. 235 for details.

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DESIGNING AND BUILDING A LEGACY: THREE HABITAT HOUSES FOR ATLANTA

AIA Atlanta's mission is to "Advance the profession of architecture." Our goals, "through INVOLVEMENT, enable our membership to":Provide leadership and participation in the public policy process and thus help to improve the quality of life of our community. Engage in life-long learning and thus respond to the evolving nature of our profession. Benefit from support, information and professional tools that enhance their success. The relationship of these goals and "Designing and Building an Atlanta Legacy" along with the theme of the 1995 AIA Atlanta national convention, "Revisioning" — seeing ourselves as collaborative leaders — is evident. Through INVOLVEMENT, AIA Atlanta is taking a leadership role in building three houses for Habitat for Humanity Atlanta for two reasons. The first relates to our wish to present a gift to Atlanta as a lasting legacy of our convention. The other addresses revisioning. Architects can no longer afford to isolate themselves from allied industries nor industry from architects. We are working hard at being collaborative leaders. This spirit of cooperation can produce tangible results and be an AIA/industry tradition. Future convention cities, we challenge you!

Roberta L. Unger, AIA
Chair, Legacy Committee

itat For Humanity

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ACCENT ON
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H•O•M•E•S

Why Don't We Build a Habitat House?

The AIA National Convention Committee of Atlanta wanted a program for the 1995 national convention in Atlanta that would be distinctive and long-lasting, something of consequence.

The two co-chairs of the committee, Peter Hand and Stanley Daniels, asked the members of the Atlanta Chapter's Legacy Committee to form and define an activity, event or idea that would embody the meaning of a legacy, something that would be a gift to Atlanta.

"We really weren't interested in doing an exhibit or a seminar," said the committee chair, Roberta Unger, of The Architecture Group Inc. "We wanted to do something that would be around for a long time, mean something to the community. At a meeting last June five of us gathered to discuss possibilities. That's how the idea started, although it exploded into a larger activity."

"We wanted to do something that would be around for a long time, mean something to the community"

Within a short time, the plan to build one home for Habitat expanded to three homes.

Habitat for Humanity International was founded in 1976 by Millard and Linda Fuller to eliminate poverty housing from the world and to make decent shelter a matter of conscience and action. It is a non-profit organization dedicated to building low-cost housing in partnership with the working poor. Habitat, through its regional chapters in the U. S., has built houses and the busiest chapter is Habitat Atlanta.

Last year Habitat-Atlanta began a special program, "100 Homes: Building An Atlanta Legacy." Its goal is to honor the 1996 Centennial Olympic Games in Atlanta by constructing 100 homes in Olympic venue neighborhoods before the games begin.

The first step for AIA Atlanta was to seek participation with Larry Arney, the executive director of Habitat-Atlanta "Is there anything we can do for you that you can't provide on your own?" Unger asked.

"Yes, there are two things," said Arney. "Habitat-Atlanta works in the city and most of the lots we can build houses on are long and narrow. The usual Habitat house isn't adapted to a lot like that. We need a design that can be adapted to the inner city lot. "The other problem we've run up against has been that some of the families that live in our Habitat houses say that they now can afford to expand their houses. But the standard Habitat house isn't very adaptable to expanding, building an extra bath or bedroom. We need a design that can accommodate expansion."

Given this charge, AIA Atlanta decided that the best way of getting the design that Habitat needed was to stage a national design competition. Invitations went out nationwide through the AIA Housing Committee. From all over the country, 170 architects paid $50 to enter the competition. The result was the submission of 81 designs, all of which were turned over to Habitat for use in its program.

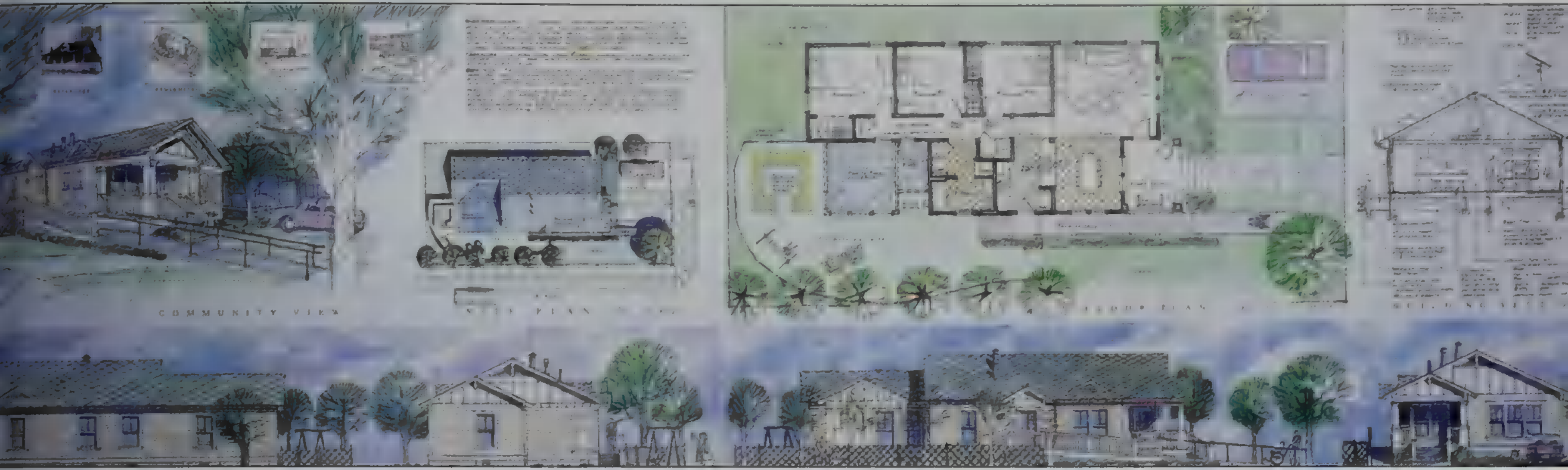
When presented to the jury, the designs were identified only by numbers. Unlikely coincidence occurred not just once, but twice. The two designs the jury chose as winners came not only from Atlanta, but from two design teams working for the same Atlanta firm, Design Traditions.

The winners are:

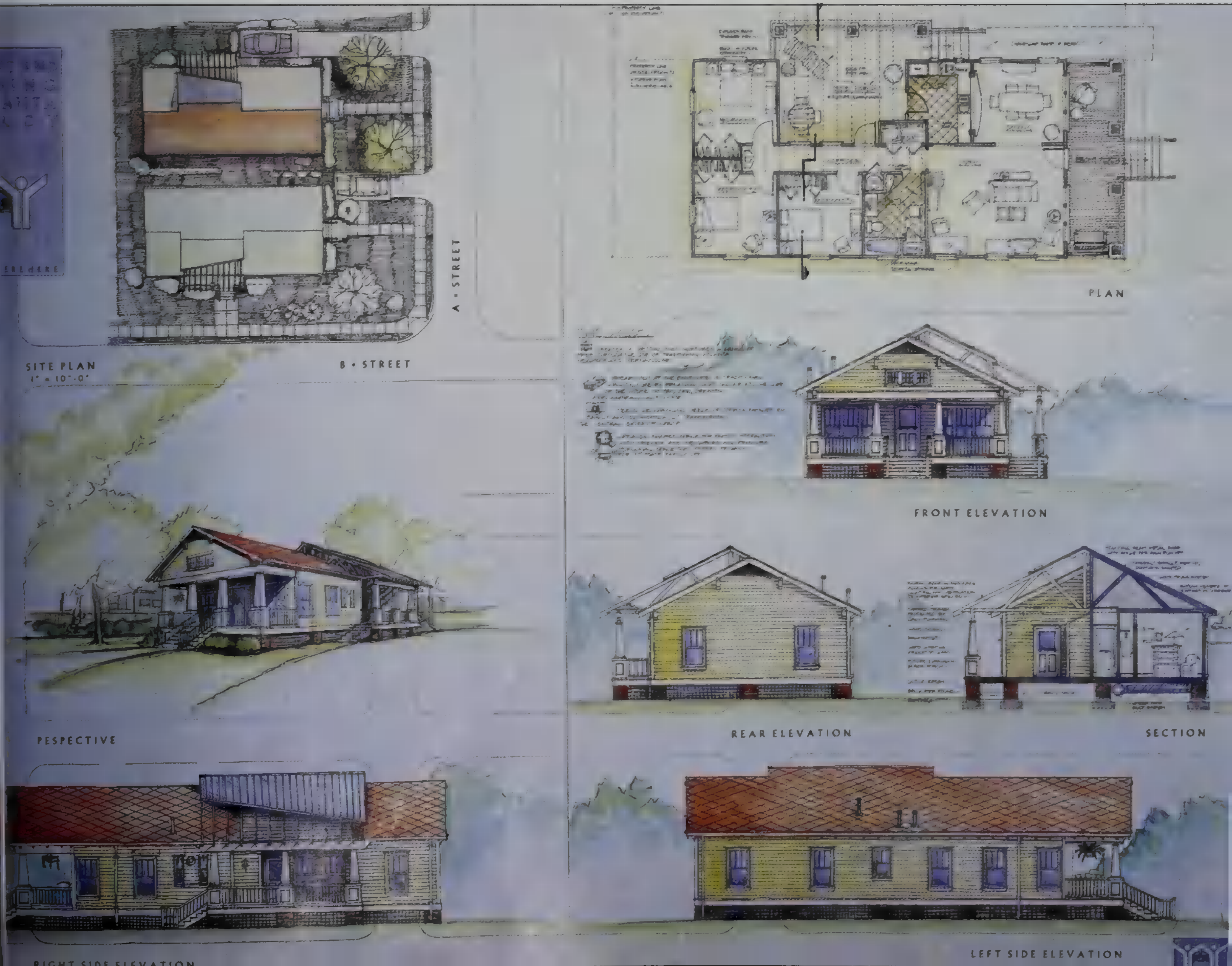
Ken Rich, AIA, team leader
Stephen Fuller
Steven McCall

Lance Carlson, AIA, team leader
Alex Shapleigh
Joe Herman
Marc Mosley

Two houses will be built from one of those designs and one from the other. But the design competition was only the begin-



The winning Habitat house designs were by a team led by Ken Rich (upper) and a team led by Lance Carlson (lower).



We'll soon get our chance, thanks to the "Designing A
Building An Atlanta Legacy" design competition. Th
project will support Habitat for Humanity, Atlanta
through the design of a home that's both affordable an
buildable. Working with the Atlanta Chapter of the AIA
the competition was opened to architects across the U.
G-P is not only a major sponsor of the competitio
We're also the only manufacturer sponsor. And becaus
it is our corporate challenge that the house be built, we'
donate a major portion of materials, like Wood I Beam
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will volunteer time and effort toward building the hous

Georgia-Pacific Can't Wait To Take A Hammer To One Firm's Well-Laid Plans.

Of the 81 finished plan
received, two clearly stoo
out. Those entries were
both submitted by team
from Design Traditions,
led by architects Ken Rich and Lance Carlson.

Soon, some lucky family will move in. But in the meantim
we'd like to thank everyone who believed in making a differen
Because while we can't wait to start building, there's
family who can't wait to have a place to call home.

Georgia-Pacific

AIA/Atlanta Habitat For Humanit

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Circle 26 on inquiry card

e were a number of ons prepared by people vere clearly competent sionals, but had some us planning mistakes. It d how difficult it is to these very simple houses and do it well o it with innovation"

ning. Habitat houses are the products of giving and the biggest job for the Legacy Committee was to find givers. The houses are built by volunteers who give their Saturdays to labor on them. It takes 20 volunteers per Saturday for eight weekends to construct a house. The houses are financed by givers of cash, usually large corporations, to underwrite construction. Atlanta AIA recruited Georgia-Pacific Corporation, MBNA America and the McGraw-Hill Construction Information Group to sponsor the three houses. The committee also worked with the construction products industry and contractors to donate all the materials and skilled labor needed to build these houses.

The American Architectural Foundation also will participate in the construction of the three houses. "I cannot think of an organization that has done more than Habitat for Humanity to raise the public consciousness about the connection between the quality of the built environment and the quality of life," said Norman L. Koonce, FAIA, president of the foundation. "There is no environment that matters more than the home. The American Architectural Foundation, through the Accent on Architecture program, is proud to be a partner in building these three architect-designed houses as part of the Designing and Building An Atlanta Legacy."

The next step is building the houses. Two are currently under way and the third will be built later in the year. Members of AIA Atlanta and members of their families will join with volunteers from Georgia-Pacific Corporation, MBNA America and McGraw-Hill Construction Information Group for a series of eight Saturday construction sessions.

The Jury

e Maurer, FAIA

urer is a principal of Maurer urer Architects, Brooklyn, N. Y. ves as chair of AIA Affordable g Committee and has served ral juries for affordable hous-

Arney

ey is an architect who took om professional practice in become director of Habitat for ity Atlanta. Under his direc- abitat Atlanta has become one rgest Habitat offices in the

el Pyatok, AIA

tok is principal of Pyatok tes, in Oakland, Calif., and a or at the University of gton in Seattle. Since 1977 he n engaged in full time practice, ly serving non-profit organizations and private developers in building affordable housing. He is a member of the National Low-Income Housing Coalition, a past member of the National AIA Housing Committee, and a consultant to the National Endowment to the Arts' program, Design for Housing.

Jeh Johnson, FAIA

Mr. Johnson has been a principal architect for over 30 years. After working with Paul Williams, FAIA, in Los Angeles, and Adams and Woodbridge, in New York, he became a partner in Gindele and Johnson. Practicing in the mid-Hudson region, he has designed and built over 100 projects, including several thousand housing units. He is a senior lecturer at Vassar College, a former member of the AIA task force on affordable housing, and a founding member of the National Organization of Minority Architects.

The Design Challenge

To explore new design alternatives for a 1,300-sq-ft house with three bedrooms and one bath that would:

- respond to the changing structure of families
- provide expanding capabilities for changing space needs
- respond to the growing need of the home as a workplace
- provide access to physically challenged or handicapped persons
- allow for volunteer-friendly construction
- be responsive to surrounding context
- be affordable for a family to purchase for no more than $45,000.

Submissions should include a concept statement, site plan, floor plan, elevations, building section to describe unique characteristics and construction, and perspective or mass model photograph.

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The Biggest Housebuilder in Atlanta

The largest builder of single-family homes in Atlanta never makes a profit. The builder is Habitat-Atlanta, the most active of 1,100 regional affiliates in the U. S. of Habitat for Humanity International. Since 1983 it has been building affordable housing for low-income families.

The homes are sponsored by corporations, churches, civic organizations and individuals and built mostly by volunteers. The architectural community has played a significant role in Habitat-Atlanta. Thompson Ventullett Stainback, of Atlanta, sponsored a house, the North Georgia AIA Foundation has been a financial supporter and many architects do pro bono work. The homes cost $40,000 to $45,000 to build. But the only profit for the builders is spiritual, the satisfaction of providing decent housing for a deserving family. Families preselected by Habitat buy the houses with modest monthly payments, typically $275, through a non-profit, no-interest loan. Homeowners must put in at least 150 hours of work on their house or help build other Habitat houses.

Habitat-Atlanta is currently operating a special program, "100 Homes: Building An Atlanta Legacy". The goal is to honor the 1996 Centennial Olympic Games, which will be held in Atlanta next year, by building 100 homes in the Olympics area before the games begin. Sponsor commitments have been made for almost all of the 100 houses. AIA Atlanta is committed to the design and construction of three homes for the program.

"100 Homes is an effort to leave a legacy in Atlanta that reaches far beyond the 1996

vas very
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at houseleader
Shaw (red jacket,
v right) displays a
e under way to its
rs, Andre and
e Johnson. Habitat
utive director Larry
(white T-shirt in
m photo) discuss-
nstruction with

Gabriel Benzur photos

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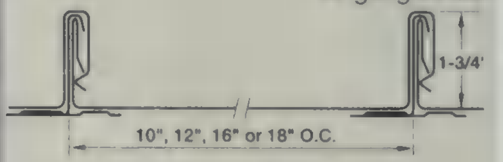

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Color: Sandstone

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e hope these 100 nes lead to hun- ds more for many anta families that ire home owner- p.”

Olympics,” says Larry Arney, executive director of Habitat-Atlanta. “Affordable housing is vital to a city like Atlanta. We hope these 100 homes lead to hundreds more for many Atlanta families that desire home ownerships.”

Prominence as a home builder didn't come quickly for Habitat-Atlanta. In 1983, one home was built. In subsequent years three, four, and seven homes were built, and production rose almost every year. Early in May, Habitat-Atlanta began building its 250th house. Habitat-Atlanta works from eight basic house plans and makes variations on these plans on porches, roof slope and trim to have them fit better into the neighborhoods where they rise. All of the houses are one-story with three or four bedrooms, a bath and a front porch. Habitat has developed a system through which unskilled labor can build most of a house. Anyone healthy enough to lift a hammer is welcomed as a volunteer. The volunteers work under the supervision of Habitat construction staff.

It takes eight Saturdays with a force of 20 volunteers each Saturday to build a house. On the first Saturday, half the volunteers work at the site on the foundation and the other half work at the Habitat warehouse assembling the interior and exterior stud walls. On subsequent Saturdays the work follows a logical progression. Habitat hires craftsmen — sometimes their services are donated — for concrete work, drywall, electrical, plumbing and carpet laying. Habitat-Atlanta tries to cluster its new houses. The appearance of a few new homes tends to have a tonic effect on the rest of a neighborhood. Older houses get new paint jobs and front lawns produce

Gabriel Benzur photos

Habitat volunteers come from a broad range of backgrounds, usually not in construction. Direction from Habitat staff turns them into competent home building crews.

ACCENT ON ARCHITECTURE PUTS THE EMPHASIS ON COMMUNITY

Accent on Architecture Brings the Message of the Value of Architecture to the American People Throughout 1995

The Accent is on Community

Through the generosity of the McGraw-Hill Construction Information Group, support is being provided to AIA Atlanta via Accent on Architecture for the construction of architect-designed Habitat for Humanity houses during the 1995 AIA convention in Atlanta.

The Accent is Also on Outreach

- Every AIA chapter, local architectural foundation, and accredited school of architecture will receive a free videotape containing filmed profiles honoring the 1995 Gold Medalist and Twenty-Five Year Award winner.
- Grants supporting public programs on the 1995 theme of excellence in public architecture have been presented to AIA components in Chicago, Cincinnati, New York City, and Orange County, Ca., and to architectural foundations in Des Moines and Philadelphia.
- The most prestigious public event in American architecture, the annual Accent on Architecture awards gala places the accent on design excellence.
- National television programming on innovative approaches to government-sponsored architecture in communities across the country is planned for late 1995.

Accent on Architecture is a national, year-long public education program of The American Architectural Foundation and The American Institute of Architects and is funded entirely through the contributions of corporations, institutions, and individuals, none more generous than the McGraw-Hill Construction Information Group.

For more information write to The American Architectural Foundation,
1735 New York Avenue, N.W., Washington, DC 20006.

THE AMERICAN
ARCHITECTURAL
FOUNDATION

THE AMERICAN
INSTITUTE
OF ARCHITECTS

hand up, not a
ndout.”

healthy growths of grass and flowers. A recent problem for Habitat-Atlanta has been finding affordable, available properties on which to build.

“Being the largest home builder in Atlanta is kind of a dubious statistic,” says Larry Arney. “The main reason we are the largest is there aren’t many for-profit builders that are actually building in the city. They’re mostly building in the outer, metropolitan Atlanta area. And people building houses for profit don’t build them in what are essentially declining inner-city neighborhoods. Last year there were 325 houses built within the Atlanta city limits and we built 50 of them.”

Larry Arney, is an architect, a graduate of the University of Tennessee. He worked for seven and a half years at Thompson Ventulett Stainback, Atlanta, before joining Habitat.

“I was very interested in housing, particularly affordable housing, and I followed the work of Habitat. I applied for a position, mostly to find out more about Habitat. I ended up getting very interested in it and became the director. I’m now in my seventh year here.” Arney directs a staff of 26 Habitat employees. Habitat-Atlanta’s board manages a $2.1-million budget and 85% of the funds raised is invested in actual house construction.

wners of two
labitat Atlanta
s, Linda
ns (top) and
Jones
m), take pride
appearance
r new homes
ardens.

Gabriel Benzur photos

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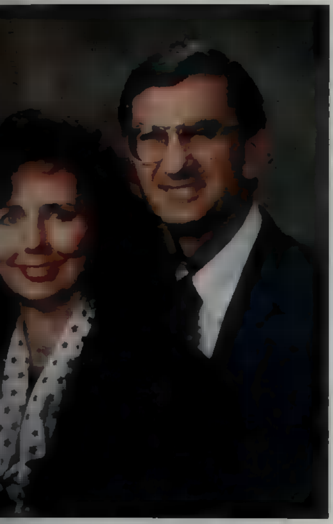

nd Millard Fuller established
for Humanity International in
rch for spiritual fulfillment.

Ray Scioscia photo

resident Jimmy Carter, working with Millard
s been a frequent volunteer on Habitat pro-

Habitat for Humanity International, an organization whose aim is to eliminate all poverty housing from the world, was founded in 1976 in Americus, Ga., by two former millionaires.

Millard Fuller was a successful lawyer and entrepreneur in Montgomery, Ala., in the early 1960s. By 1965, when he was 30, he had made his first $1 million and his goal was $10 million. His wife, Linda, was unhappy with a husband who was married to his work and felt that the accumulation of money was not the basis of a marriage. She left him, taking their two children with her. Millard followed her and in the reconciliation they decided to sell everything they owned, give the proceeds to charity and seek a more fulfilling life.

The Fullers lived and worked in various ministries for several years, seeking spiritual renewal. They spent five years at Koinonia Farm, a Christian community near Americus, Ga., that built houses for people in need. In 1973 they went to Zaire to start a housing program. When they returned to the U. S. and Americus in 1976, they led the formation Habitat for Humanity International (HFHI).

"We want to make shelter a matter of conscience," said Fuller. "We want to make it politically, socially and religiously unacceptable to have people living in substandard housing."

Habitat got off to a slow start. Its program was to develop Habitat affiliates around the world to build low-cost houses through donations of money, material and manpower. Millard and Linda Fuller walked around the U. S. and traveled in third world countries to spread their gospel, "no more shacks."

Gradually, Habitat accrued thousands of volunteers from churches, colleges, corporations, civic organizations and nonaligned individuals to help. By 1987, Habitat's annual construction rate reached 1,000 houses in the U. S. and abroad. By 1993, production was 8,000 units and the target for 1995 worldwide is 10,000. So far, more than 12,000 houses have been built in the U. S.

The same intelligence and energy that made Fuller a successful businessman in his youth have carried over to HFHI, which a recent survey called the 17th

Sometimes, working hard just doesn't work.

Like you, most people work hard at their jobs. But for some, their reward is a squalid shack. Though hard to believe, thousands work hard to pay for "housing" with no plumbing, no heat . . . and no hope. Trapped by a situation that takes their hard-earned wages just to subsist, the dream of decent shelter begins to die.

We at Habitat for Humanity are working to break the cycle. A non-profit ecumenical Christian organization, we work as partners with those needing simple, decent, affordable shelter. We mobilize volunteer help and solicit donated resources to build low-cost houses, sold at no-interest with no profit.

Our new homeowners don't seem to mind the 400-500 hours of "sweat equity" work that's required of them. In fact, many continue to work on the homes of others long after their commitment has been met. They can see that all the hard work pays off.

To learn more about Habitat for Humanity's work, simply contact us at the address or number below. As you'll see, Habitat works.

Habitat for Humanity International

121 Habitat Street Americus, GA 31709-3498 (912) 924-6935

Ve want to make it
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ve people living
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using.

largest home builder in the U. S. The HFHI headquarters in Americus has a staff of 300 and an annual payroll of $5.75 million. There are more than 1,100 Habitat affiliates in the U. S. There is a Washington office that serves as liaison between Habitat and national and international entities that have impact on Habitat's work.

The Habitat houses are the result of volunteering, which can include labor, money, materials and skills. Currently, about 70% of HFHI revenue comes from donations of individuals and 7% to 9% each comes from corporations/foundations, affiliates and donations of materials. Under the Habitat program, families in need of housing invest 300 to 500 hours of work, sweat equity, into building homes for themselves, working side by side with Habitat volunteers. When a home is complete, the partner family buys it at cost on a 20-year, interest-free mortgage.

A Habitat slogan is: A hand up, not a handout.

By investing themselves in the building process, homeowners gain self reliance, self esteem and new skills. Home ownership has been found to have a strengthening effect on family life. Children's grades improve. Neighborhoods have seen crime rates fall and businesses develop after the introduction of Habitat houses.

The bulk of Habitat construction is carried out through local affiliate organizations, such as Habitat-Atlanta, which develop construction programs in their areas and pursue donations of money, materials and labor. Housing designs reflect local custom, wood frame, clapboard houses in the U. S., brick in Australia and Colombia, mud brick in Uganda and concrete block in India.

Although the Habitat houses are built for the most part by untrained volunteers, they don't lack substance. When Hurricane Andrew struck Florida in 1992, it damaged or destroyed more than 130,000 homes. There were 27 Habitat houses, either new or rehabilitated, in the direct path of the hurricane, but none of the 27 suffered more than minor damage.

Sy Fassman photo

Julie A. Lopez photos

Construction of Habitat houses abroad reflects local building practices. Houses here were built (counterclockwise) in Burnudi, Burundi, Bolivia and China.

Georgia- Pacific

"Good people doing the right thing." At Georgia-Pacific Corp., it's not just a slogan, it's the way we operate. Our employees strive to illustrate this concept on a daily basis, from participation in one of Georgia-Pacific's many community-related efforts to support of our strong environmental programs.

Georgia-Pacific recognizes the importance of the architectural community in both residential and commercial construction/renovation. When we learned of the American Institute of Architects' plans with Habitat, we knew we had to be part of them. We are very pleased to be a partner — both in the original design contest and the final building process — with the AIA in this wonderful project.

In the decision to support the AIA efforts for Habitat, we feel we are committing ourselves even more deeply to both an important industry and our home city of Atlanta. This home building project fits perfectly with our corporate ideals and identity. As proud members of the Atlanta business community, we are dedicated to providing the best goods and services possible, especially when the need arises in our own backyard. Georgia-Pacific has long been a supporter of many important programs, from working with Project Hope to provide houses for low-income Atlanta families, to providing builder education programs, to preserving and enhancing the environment. We are very excited about this opportunity and are proud to give more than just dollars to the effort. On Saturday, May 6 (during the AIA convention) and on May 13, Georgia-Pacific employees will help construct the Habitat homes using our quality building products. When our Wood I Beam TM joists, Grand View TM Vinyl Windows and many other products are installed in the houses, it means a large part of Georgia-Pacific — both emotionally and physically — will stay with these homes into the future.

Davis K. Mortensen
Executive Vice President - Building Products
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Our relationship with Habitat for Humanity is a natural extension of our own vision, mission and values. Like Habitat, we help build success for people around the world. Like Habitat, we think globally and work locally. At the heart of what we do is the notion of community — the understanding that building is a collaborative effort. People working together can create something much greater than they can provide individually. Drawing on more than 100 years of McGraw-Hill heritage, we are continually developing and delivering new information products and services for our customers. ARCHITECTURAL RECORD, ENGINEERING NEWS-RECORD, F. W. Dodge, Sweet's and our regional construction publications helped our customers design and build the first generation of skyscrapers in the 1890s, the great dams and public works of the 1930s, the postwar suburbs, and the schools of 20th century America. While we cover all kinds of buildings and structures, we have always been deeply involved in housing — providing our customers with the latest, most accurate information in the field. That tradition continues as we serve as a sponsor of the Housing Leadership Conference and as primary sponsor of the 1995 Accent on Architecture program.

Many of the 2,000 CIG associates are proud to roll up their sleeves and build the future, side by side with other Habitat sponsors.

Stephen B. Bonner
President
Construction Information Group

The McGraw-Hill Companies

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MBNA America Bank, McGraw-Hill and Georgia-Pacific have joined with the American Institute of Architects in support of an effort initiated by Habitat for Humanity in Atlanta. The project, entitled "Building An Atlanta Legacy," will combine the efforts of individuals and corporations throughout Atlanta as they work to construct 100 homes in tribute to the 1996 Summer Olympic Games.

Representatives from MBNA, McGraw-Hill and Georgia-Pacific will work together to construct three homes, beginning this May and continuing into the fall.

MBNA America, one of the nation's leading lenders through bank credit cards, opened a regional marketing operation in Atlanta in 1992. Since that time, the company has participated in a variety of community service projects. Its recent alliance with McGraw-Hill and Georgia-Pacific came about because of the company's continuing desire to make a lasting, positive impact on the local community.

Joe De Santis
Executive Vice President
MBNA America

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for their contributions of resources, time and talent to our Atlanta Habitat for Humanity project. Their eagerness to take a major role in turning a vision into a reality underscores their commitment to grassroots participation in meaningful community programs. The success of our project is a direct result of their generosity and sincere interest in working with our organization.

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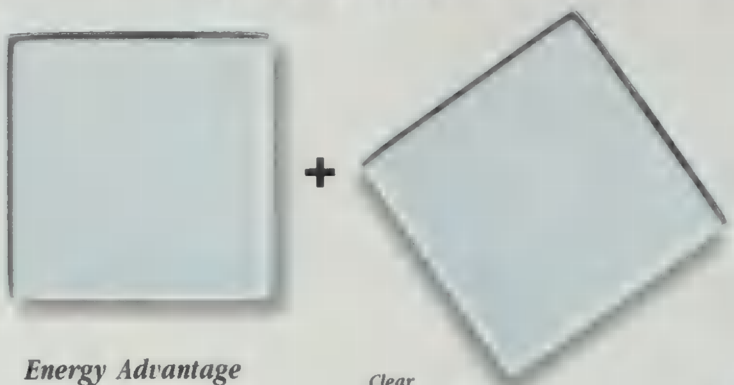

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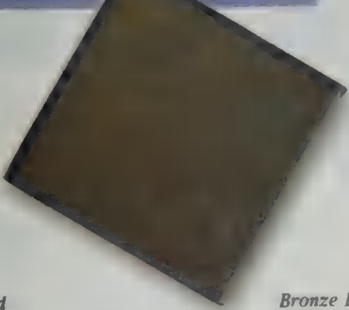
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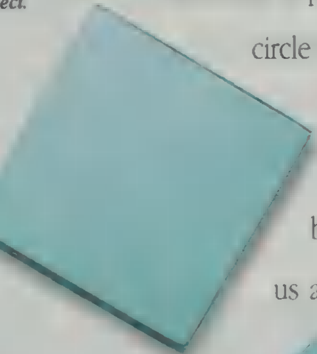
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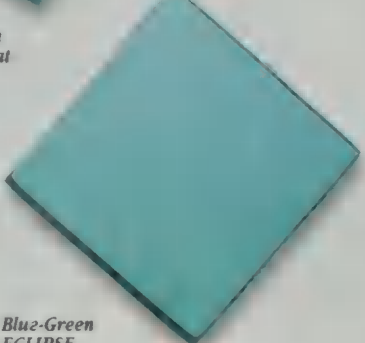
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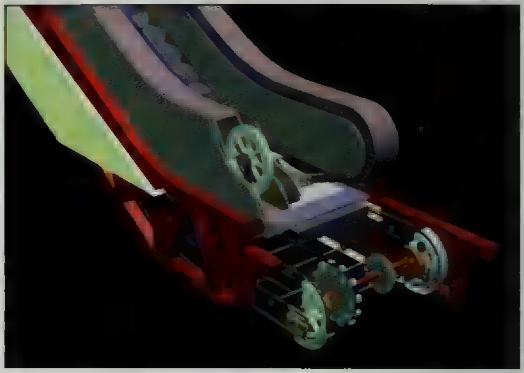
MODEL



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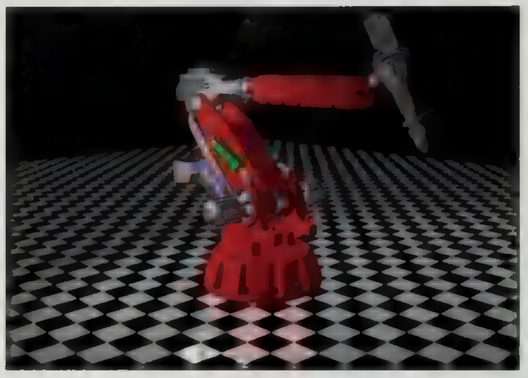

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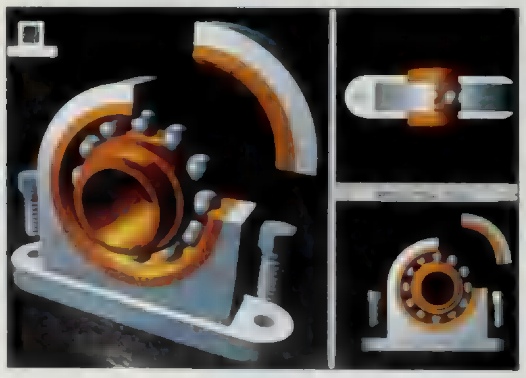

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ETTERS *continued from page 4*
evelopment for this market. EDC's role is to
se its real estate and financial tools to help
evelop businesses and create jobs through-
ut the five boroughs. In this case, EDC was
esponsible for both hiring Hirsch/Danois
rchitects to design the project and for moni-
oring the construction of the Moore Street
Iarket, which today is a rejuvenated, esthet-
, and feasibly maneuverable place to
urchase foodstuffs and other vendor prod-
cts.
lay B. Lifflander
resident
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orporation

loating Casino
am sure that Mr. Coleman Coker was not
ware of the history of Splash Casino when
e wrote his article "On the Waterfront."
plash is probably the most widely travelled
uilding in the United States. It was original-
 designed by P. Gerald Foote and
ssociates to be located on the Ohio River at
Iewport, Ky. and operated there under the
ame "The Islands and Splash." From here it
ioved to Louisville, Ky., and from there,
ventually to Tunica.

ne of the original reasons for designing at
hat time one of the largest floating buildings
as the ability to move it when the market
hanged or it became desirable to replace it
vith a new restaurant/night club. When
plash was floated to Louisville, we designed
s replacement, "Newport Beach," which
lso moved from Newport to the Mississippi
asin to become the moored headboat for the
iver boat gambling "President."

).T. Marshall Architects and Engineers and
rchitects are responsible for the site devel-
pment in Tunica and any remodeling that
ccurred there. But, except for the bridge
onnection, we were the architects responsi-
le for the "building" shown in the photo of
Splash."
. Gerald Foote, Architect
incinnati, Ohio

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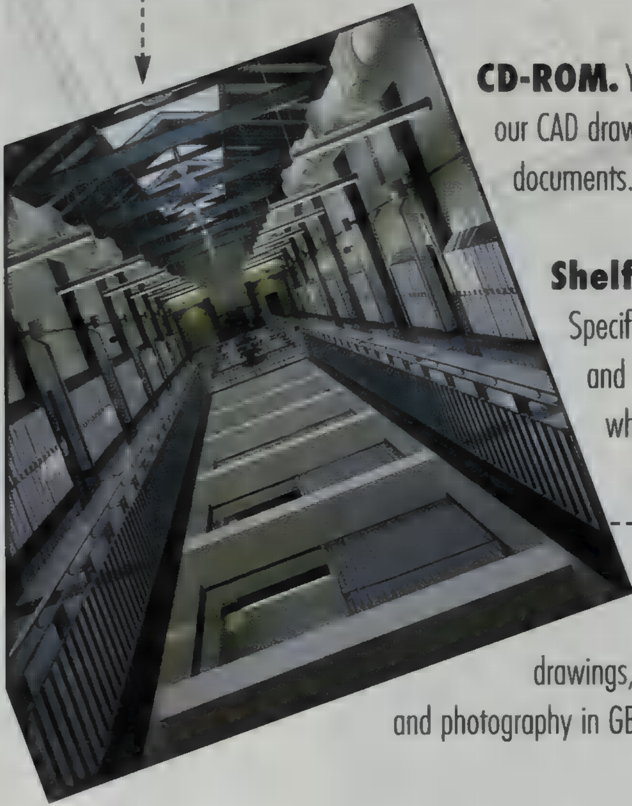

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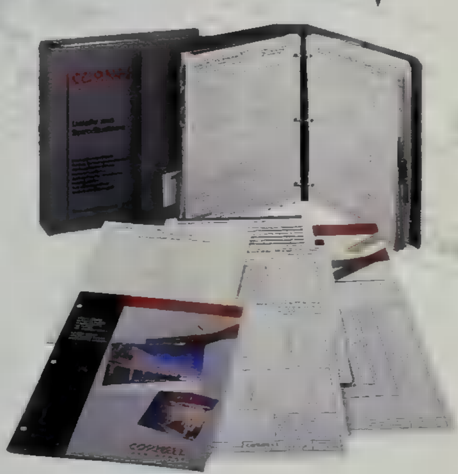

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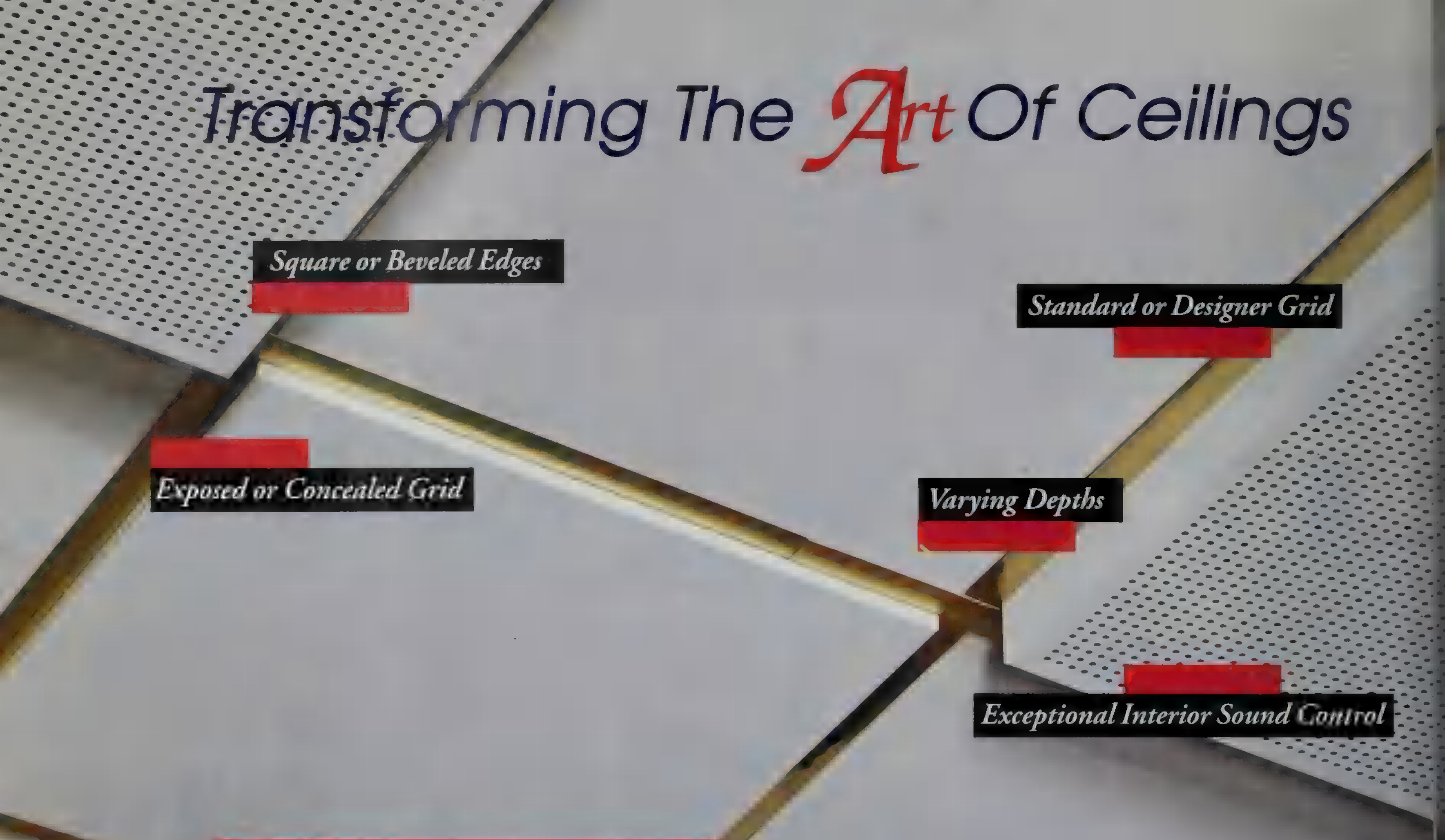
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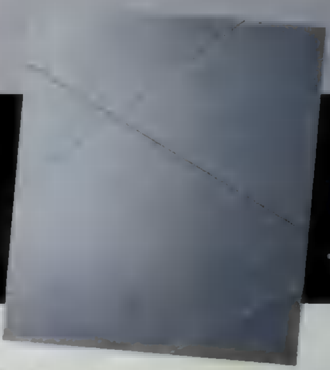

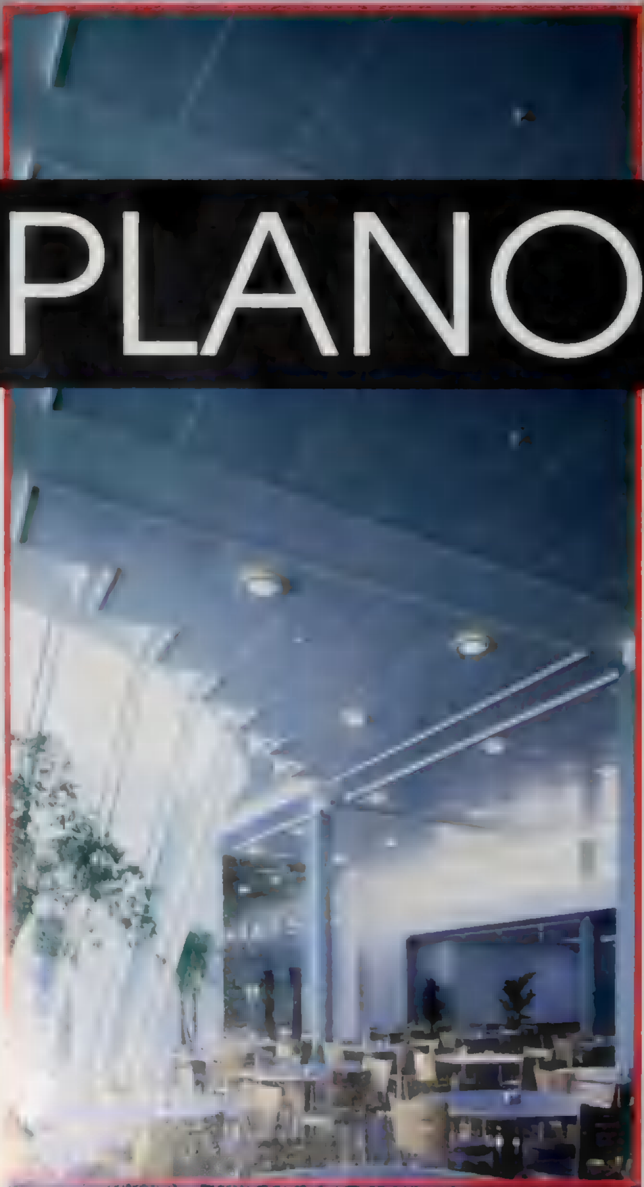

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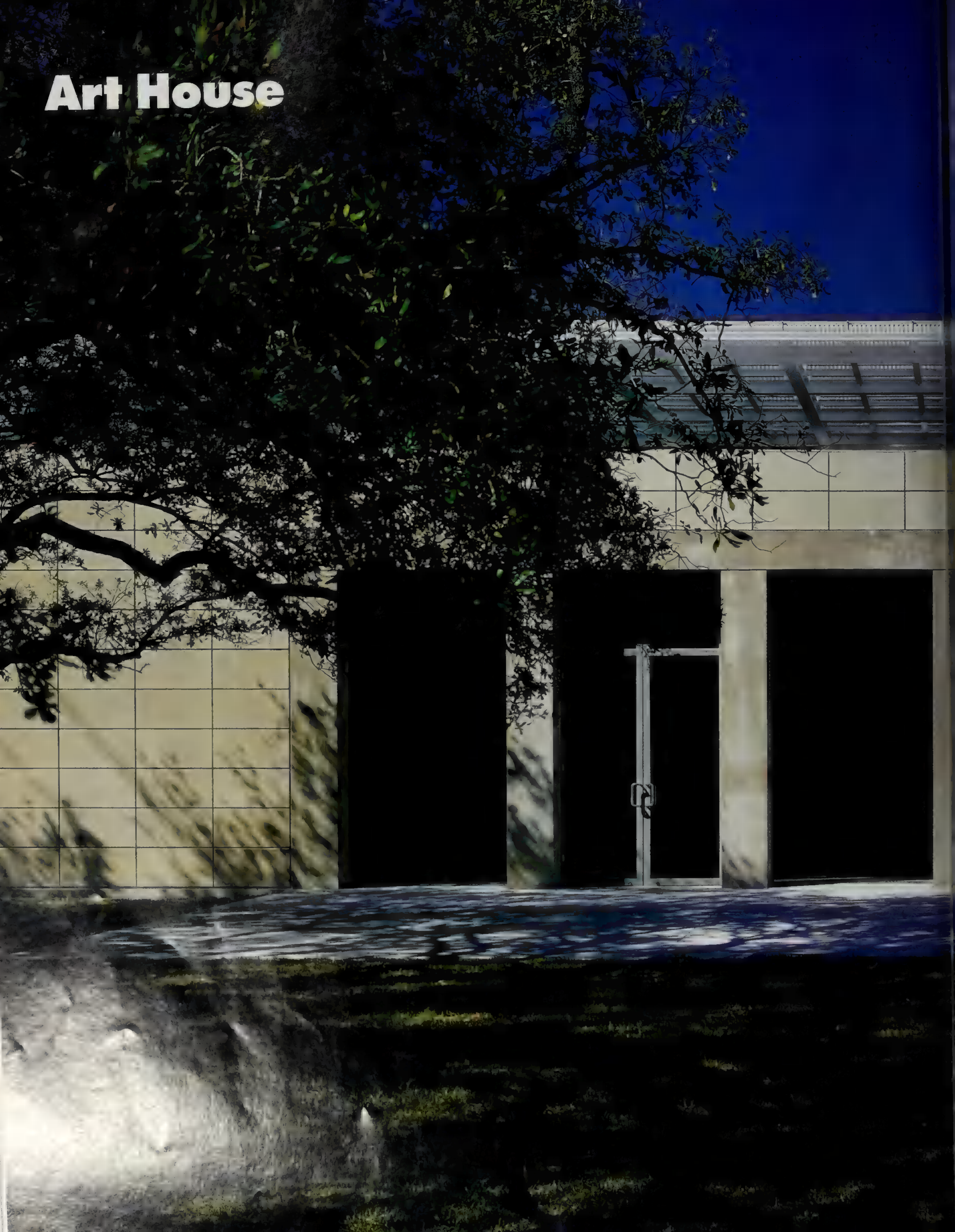
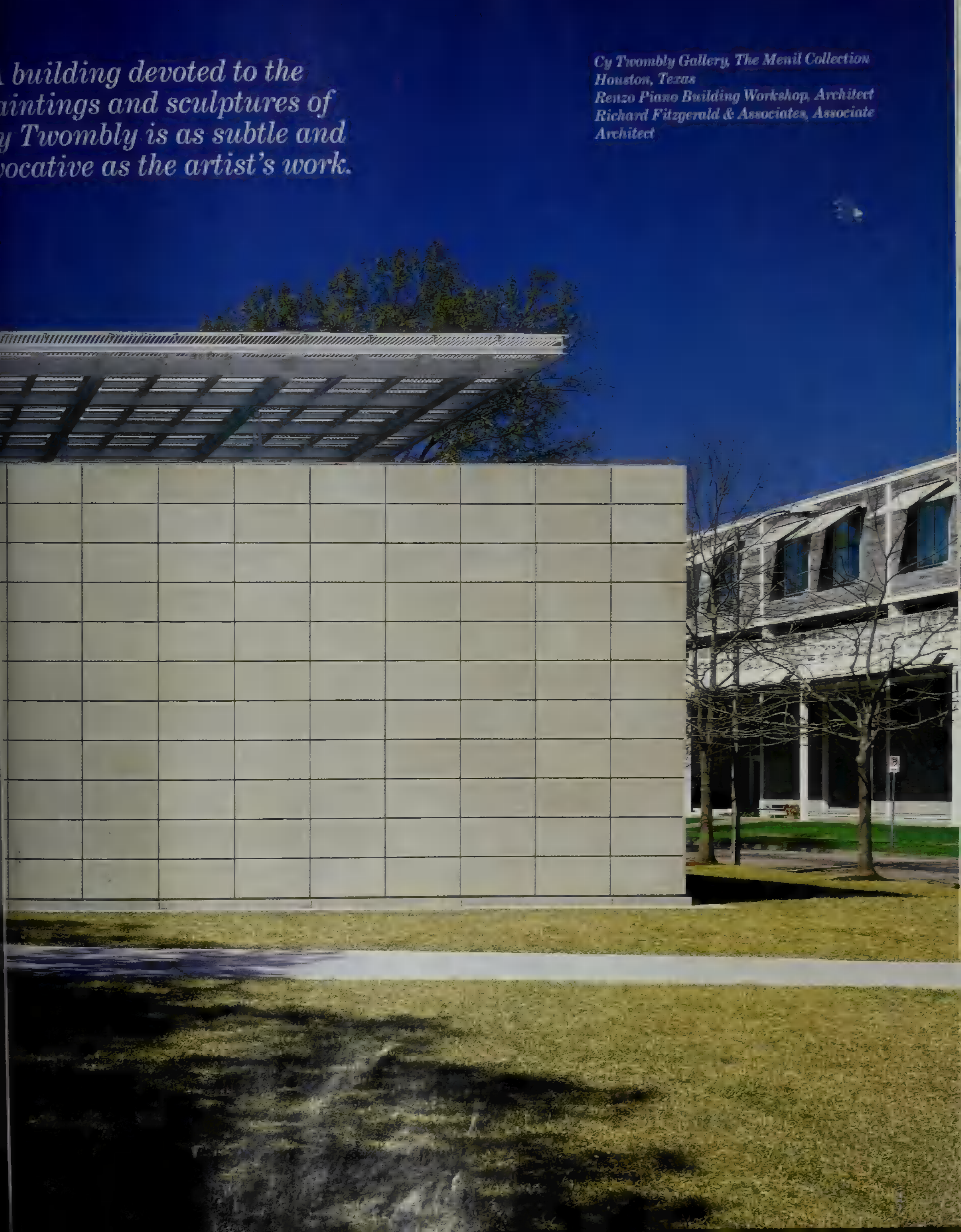
Building Types Study 726/Local Courthouses

The German word "Gesamtkunstwerk," or total work of art, used by associate editor Clifford Pearson to describe Cologne-based architect O.M. Ungers's new residence for the German ambassador in Washington, D.C. (page 96), is also a fitting summary of other projects in this issue. The Cy Twombly Gallery (page 78), an annex to The Menil Collection in Houston, Texas, combines the artistry of Twombly and the architecture of Renzo Piano in a cohesive whole. A portfolio of recent work by Swiss architects Jacques Herzog and Pierre de Meuron (page 84) traces what correspondent David Cohn calls "a new direction in European architecture," specifically a move "toward a poetic minimalism" that fuses the material qualities of architecture with contemporary conceptual art. Susan Maxman's Women's Humane Society Animal Shelter in Bensalem, Pennsylvania (page 92) also leaves nothing to chance: the architect's choice of recycled and environmentally sensitive building materials is in keeping with the facility's humane mission. Building Types Study 726/Local Courthouses (page 104) reviews a mini construction boom spurred by changes in the courtroom, a revealing portrait of current judicial practices. *Karen D. Stein*

Manufacturers' Sources
isted on page 123

Art House



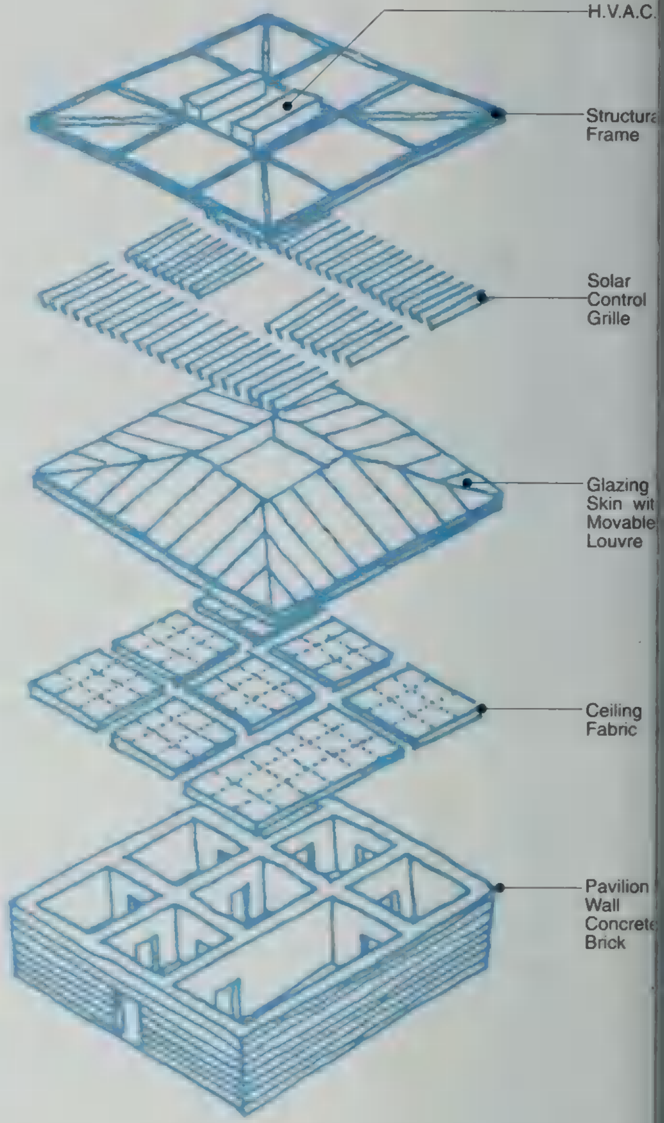


A building devoted to the aintings and sculptures of y Twombly is as subtle and vocative as the artist's work.

Cy Twombly Gallery, The Menil Collection
Houston, Texas
Renzo Piano Building Workshop, Architect
Richard Fitzgerald & Associates, Associate Architect

When it comes to museum design, artists and architects often disagree about who should get the spotlight. Not so for the Cy Twombly Gallery in Houston, where Twombly and Renzo Piano share top billing for overall good effect. Though credit goes to Twombly for conceiving the nine-square grid plan with one double bay to accommodate huge canvases, it's Piano who gave the scheme three-dimensional form. The Italian architect had designed The Menil Collection, which opened in 1987, and was asked by museum director Paul Winkler to add an annex devoted exclusively to the work of Twombly, who is prominent in the 15,000-piece collection. Although Winkler considered other architects, from his previous experience with Piano he approved of the architect's sensitive use of natural light and his unwillingness to sacrifice art to overly assertive architecture. Says Piano of the assignment: "You accept that you are doing something that is more important than your personal desire to express yourself."

Still, Piano was able to convey his own power and authority. He placed the entry to the gallery perpendicular to the street, creating a garden forecourt sympathetic to the residential neighborhood. His solid, almost bunker-like exterior consists of 16-feet 6-inch-high walls of precast concrete block—making the structure, in his words, "not big enough to compete with The Menil Collection or small enough to disappear." The walls contrast with an elegant and seemingly floating roof that incorporates an elaborate skylight and sun-shading system (drawings right and opposite), which diffuses light through a seamless cotton scrim mounted below. Inside, the opaque fabric conceals the intricacy of the roof, giving a mysterious luminescence to the galleries and Twombly's often delicate pencil and bristle strokes. Says patron Dominique de Menil: "Piano has built a jewel." *Karen D. Stein*



Credits
Cy Twombly Gallery, The Menil Collection
Houston, Texas
Architect: *Renzo Piano Building Workshop—Renzo Piano, principal-in-charge; Shunji Ishida, associate-in-charge; Mark Carroll, Michael Palmore, Shelley Comer, Allison Ewing, Steve Lopez, Maurizio Bassignani, project team*
Associate Architect: *Richard Fitzgerald and Associates—Richard Fitzgerald, principal-in-charge; George Krezinski*
Engineers: *Ove Arup & Partners (structural, services)—Jane Wernick, Sarah Meldrum, John Hewitt, Duccia Farnetani, Tom Barker, Andy Sedgwick, Katherine Holden, Alan Locke, project team; Haynes & Whaley (structural)—Larry Whaley, Robert Tyler, Charles Eggert, and Frank Lo, project team; Lockwood, Andrews & Newman (civil)—Herbert Weisend*
Consultant: *Mojtaba Navvab (services)*
General Contractor: *Miner-Dederick constructors—George Miner, John Czapski, Gordon Scott*

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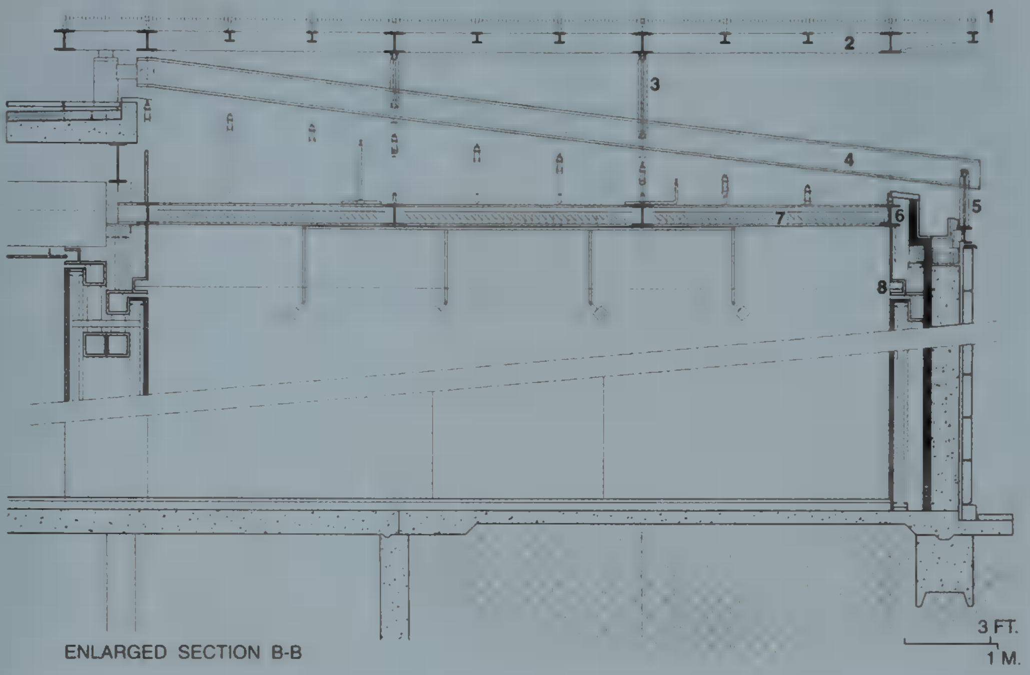
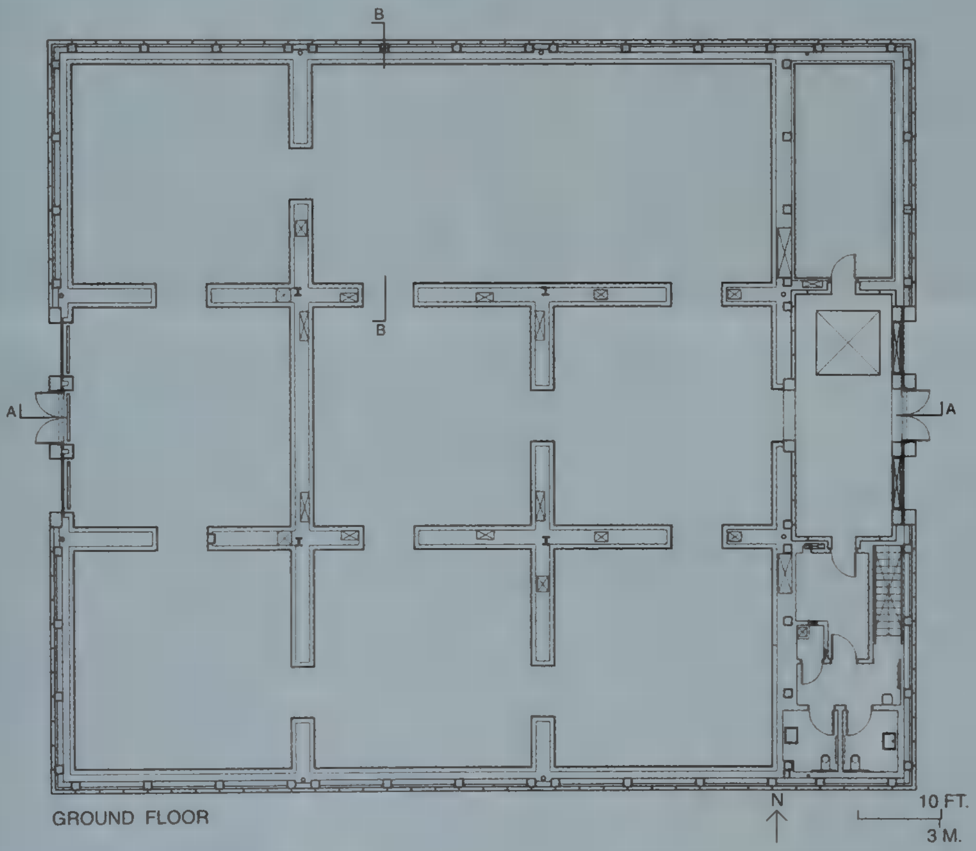
Across the street from the Piano-designed [illegible] first Menil Collection, the Cy Twombly Gallery, while a more modest 9,300 [illegible] is still a giant stripped-down [illegible] including renovated 1920s [illegible] Piano continues to design other [illegible]

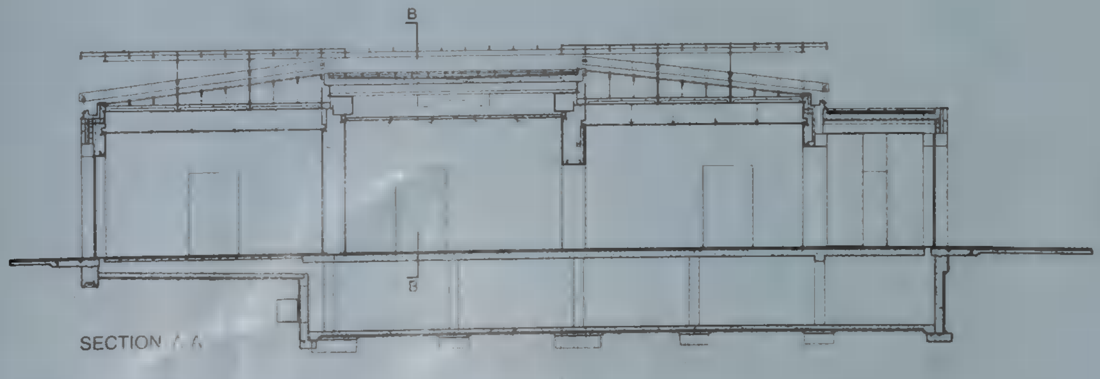


ENLARGED SECTION B-B

1. *Stationary, sloping aluminum louvers block south light*
2. *Steel truss*
3. *Ductal iron support members*
4. *Double-member steel beam supports skylight system*
5. *Steel struts*
6. *Steel beam*
7. *Light-activated motorized louvers*
8. *Slot for cotton ceiling*



GROUND FLOOR



SECTION A-A

EXIT

Quiet Front

A portfolio of work by the Swiss firm Herzog & de Meuron reveals a sense of strength and calm.

Twenty-four years ago, the unknown architectural team of Richard Rogers and Renzo Piano won an international competition to build the Centre Georges Pompidou in Paris, launching their careers and making architectural history. Last February, London's Tate Gallery made a similar bid for history when it selected little-known architects Jacques Herzog and Pierre de Meuron to design the new Tate Gallery of Modern Art, which will be installed in the former Bankside Power Station across the Thames from St. Paul's Cathedral (opposite). Chosen over finalists Rem Koolhaas, Tadao Ando, Rafael Moneo, David Chipperfield, and, yes, Piano, the proposal by the two 44-year-old architects represents a new direction in European architecture: away from the brilliant technological effects of the Centre Pompidou and toward a poetic minimalism. (Appropriately, Herzog and de Meuron's work is the subject of an exhibition on view at the Pompidou this month.)

Building ■ firm foundation

After graduating from Zurich's ETH (Advanced Technical School of Architecture) in 1977, Herzog and de Meuron built their reputation with modest houses, apartment buildings, and industrial structures primarily in their native city of Basel. Like many European architects practicing today, their work falls within the broad confines of Modernism, incorporating references to a wide array of sources: Mies van der Rohe, Louis Kahn, and Robert Venturi. But their working method and their goals have more in common with contemporary conceptual and minimal art. In fact, they have collaborated on projects with German painter Gerhard Richter and the late Joseph Beuys, and their work has affinities to the perception-bending installations of American artists Robert Irwin and James Turrell, or to Robert Ryman's paintings of white horizontal stripes. Like many of these artists, they explore the material qualities of architecture—the rhythm, texture, and light created by building elements and construction systems.

In writing about their own work, Herzog and de Meuron explain that their aim is to discover, through analysis and purification, the depth and coherence of nature and obsolete craft traditions, which Herzog describes as belonging to the "distant Utopia of a complete and integrated culture." In this sense, their small apartment building in a Basel courtyard (following pages) creates a dialog with traditional construction methods. Herzog compares its assembly of wood, steel, and glass to a musical instrument in its careful construction and in t unity of its elements.

But Herzog insists that the building's reference to the past is not no talgic, just as its use of a distilled modern vocabulary is not stylistic. Rather, he says, the work is conceived in strictly "conceptual" relati to its sources. "Architecture," he declares, "creates its own reality." The architect's experience of the world is transformed into an independent esthetic object. "What else can we do," asks Herzog, "but carry within us all these images of the city, of pre-existing building forms and materials, the smell of asphalt and car exhaust and rain, t use our pre-existing reality as a starting point and build our archite ture in pictorial analogies?"

Early projects

Herzog and de Meuron's concept of depth and coherence is powerfu ly conveyed in an early project, the Stone House in Tavole, Italy (following pages). Rough fieldstone walls infill a crisp grid of concret partitions and floors. It's an ambiguous play between surface and depth, between the facades of the building and its inner structure— strategy characteristic of the architects' subsequent work. Each facade, with its cross-shaped intersection of wall and floor edge, is thus a mirror of the plan and section, transforming the facade into both mask and veil. In the words of the architects: "The finished out form is determined to a very large degree by the pushing out of the inner structure, analogous to a form of growth."

The mysterious, seductive quality of a closed and apparently mute container is especially effective in the architects' industrial buildings The galvanized metal skin of the Ricola warehouse (following pages) built for a manufacturer of cough drops, is wrapped in a second skin of horizontal boards, which are set at an angle on cantilevered "shelves" that mimic storage shelving inside. The composition recall both the stacks of lumber at neighboring sawmills and the coursing the abandoned limestone quarry where the building is located.

The railroad signal box in Basel is similarly encased in a screen of horizontal copper strips, which the architects twist open slightly ove glazed areas of the facades. The copper protects the electrical switc ing equipment from outside interference and relates both functional and allusively to what is inside.

"Like many conceptual artists, they explore the material qualitie of architecture—the rhythm, texture, and light created by building elements and construction systems."

Hisao Suzuki photos

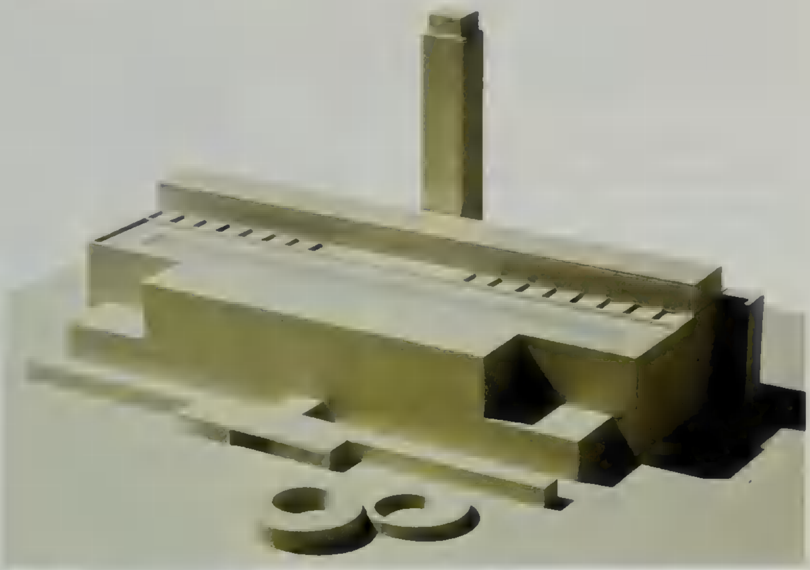
Architects Jacques Herzog (far left) and Pierre de Meuron (near left).

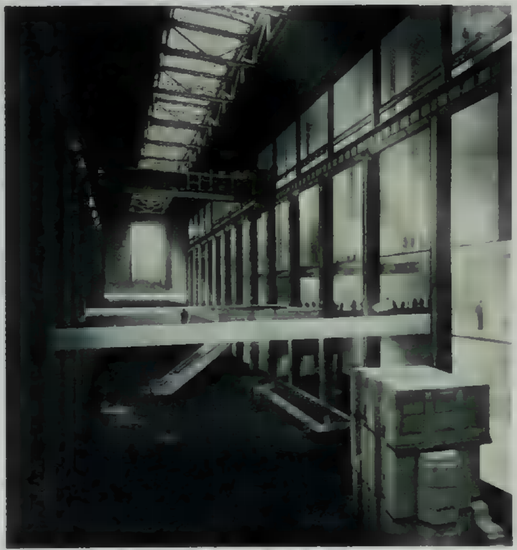
projects with more conventional programs, Herzog and de Meuron
evitably turn to the properties of glass, screens, and other light-
ansmitting materials to pursue similar effects. The seven-story
mmercial and apartment building in Basel (following pages), sand-
iched between modern buildings on a narrow medieval lot, has
st-iron exterior shutters modeled on street gratings. The open slots
the shutters curve slightly, creating vibrant patterns of light and
adow.

chieving international prominence

ow, as the architects begin to achieve international prominence,
eir delicate precision is being used to dramatic effect. The Tate
allery, their first major foreign commission, represents a calculated
amble by Tate director Nicholas Serota, who hopes to shake up what
e sees as the insularity of the British architectural scene and the
rrent dominance of High Tech practitioners such as Rogers, Sir
orman Foster, and Nicholas Grimshaw. The Tate program calls for
0,000-square-feet of exhibition space inside a monumental power
ant designed by Sir Giles Gilbert Scott in 1947. Its $125-million
dget will be partially covered by Britain's new National Lottery,
e so-called Millennium Fund, which is sponsoring a host of major
ltural projects to celebrate the year 2000. The Tate will consolidate
s collections of British art in its existing buildings in Millbank,
ondon, and dedicate the new facility to modern and contemporary
t from around the world.

erzog describes the architects' intentions for the Tate as both
minimal and maximal": intervening as little as possible in the exist-
g building to introduce natural light and draw out the unrealized
tential of the existing space. The centerpiece of the design is the
0-foot-long, 85-foot-high Main Turbine Hall, a magnificent atrium
r large-scale artwork. It is lined on its north side by the multi-
yered glass wall of the galleries, which are arranged on three levels
either side of an existing 325-foot-high central chimney. On the
of, a glass addition runs the length of the building, housing a restau-
ant with views of the river and city. Herzog and de Meuron are not
one in the understated quality of their architecture; schemes by
early all the Tate finalists avoided bravura gestures. They may be
ading international architecture into a more modest and introspec-
ve period. *David Cohn*





The Tate Gallery of Modern Art will be installed in a former power plant. Herzog and de Meuron seek to exploit the potential of existing spaces, while introducing natural light to interior spaces. Galleries overlook the 500-foot-long Turbine Hall; the rooftop restaurant overlooks the Thames.

©Photos courtesy Tate Gallery

Stone House
Tavole, Italy
1982-1988

The stone rubble walls of this rustic country house, built in the middle of an olive grove on an old stone terrace, act as texture and allusion rather than structure, filling in a concrete frame and wrapping corner columns. The main floor has four rooms arranged in a pinwheel around cross-shaped partitions; the top floor is open with windows on three sides.

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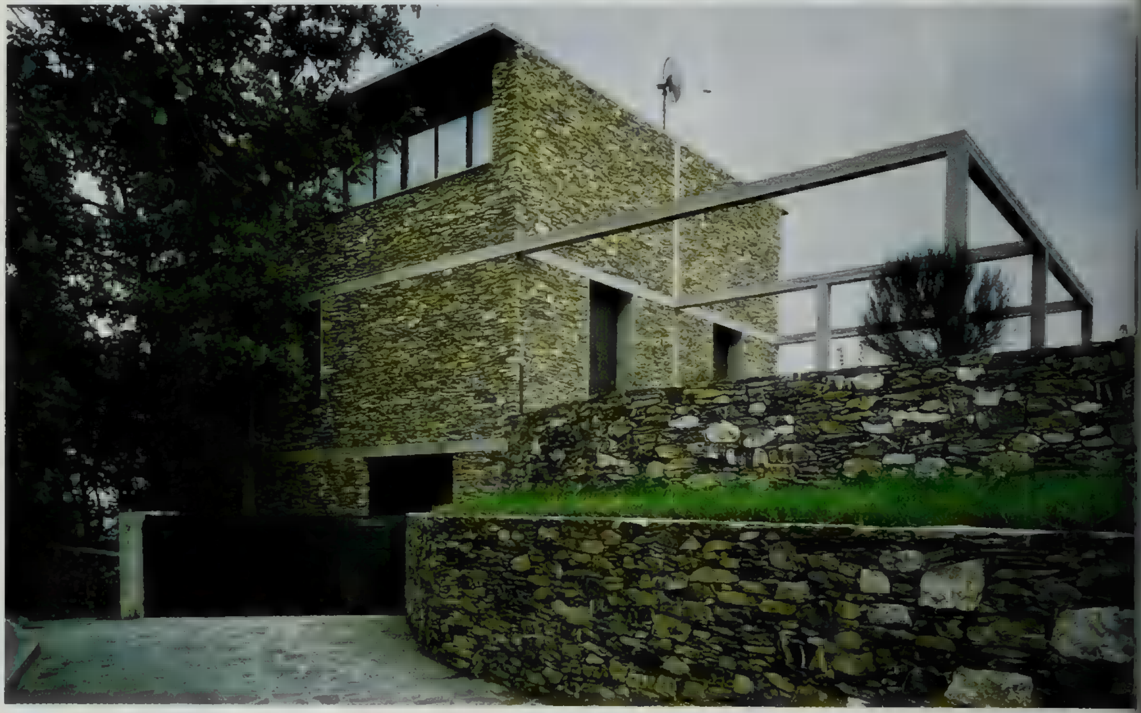
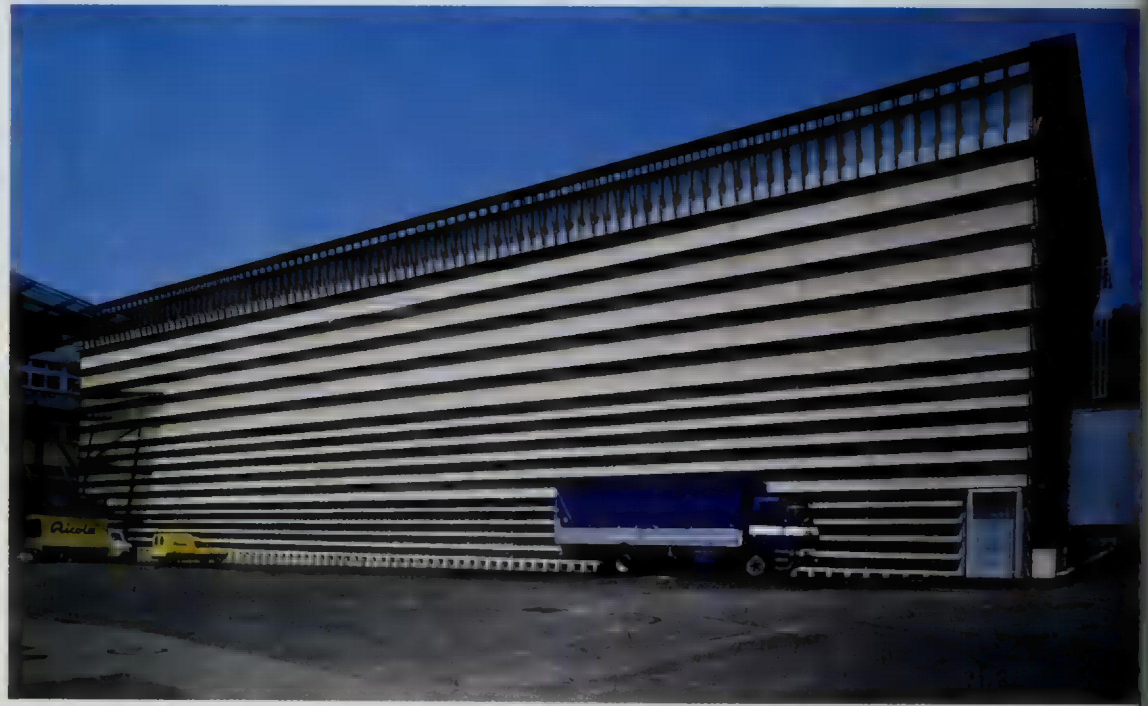
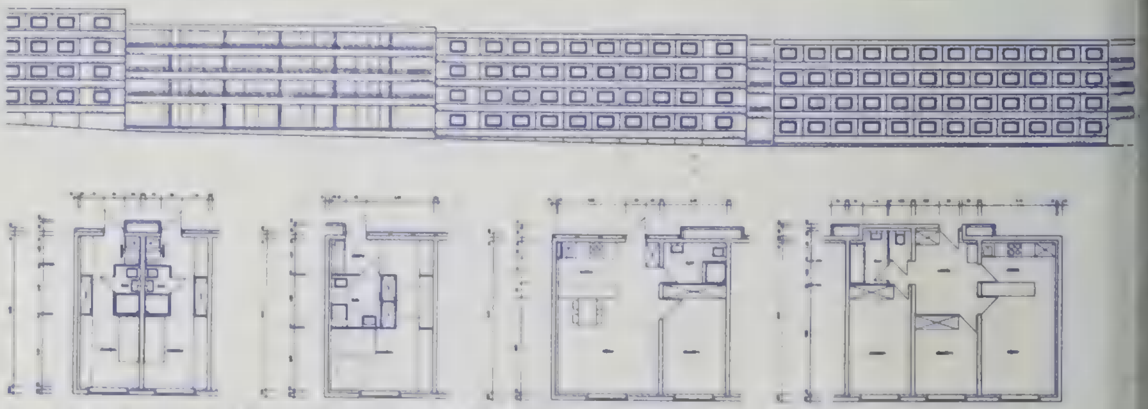


Ricola Storage Building
Laufen, Switzerland
1986-1989

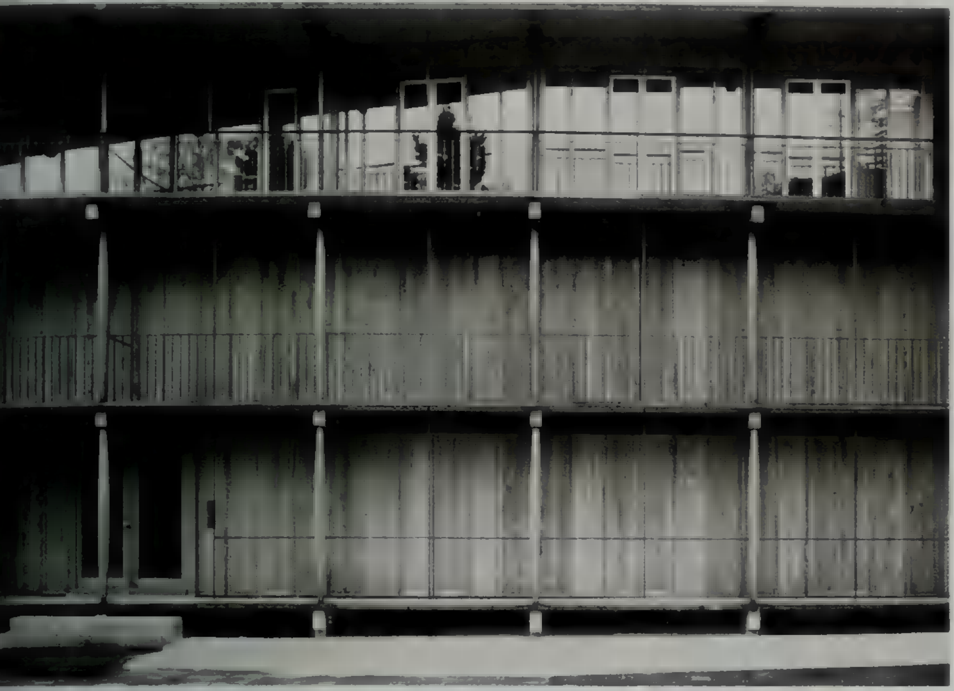
The building's wooded setting in an old quarry is reflected in its materials, which are combined with sophistication and originality. The sheet-metal warehouse is wrapped in a second skin of horizontal boards, set at an angle on cantilevered "shelves" that mimic the storage shelving inside.



Larger built work includes student dormitories in Dijon, France, with blocks of rooms alternating along a continuous corridor; a second project for Ricola built as an independent structure straddling an existing warehouse; and a public-housing project near Vienna, featuring L-shaped units arranged in continuous rows.

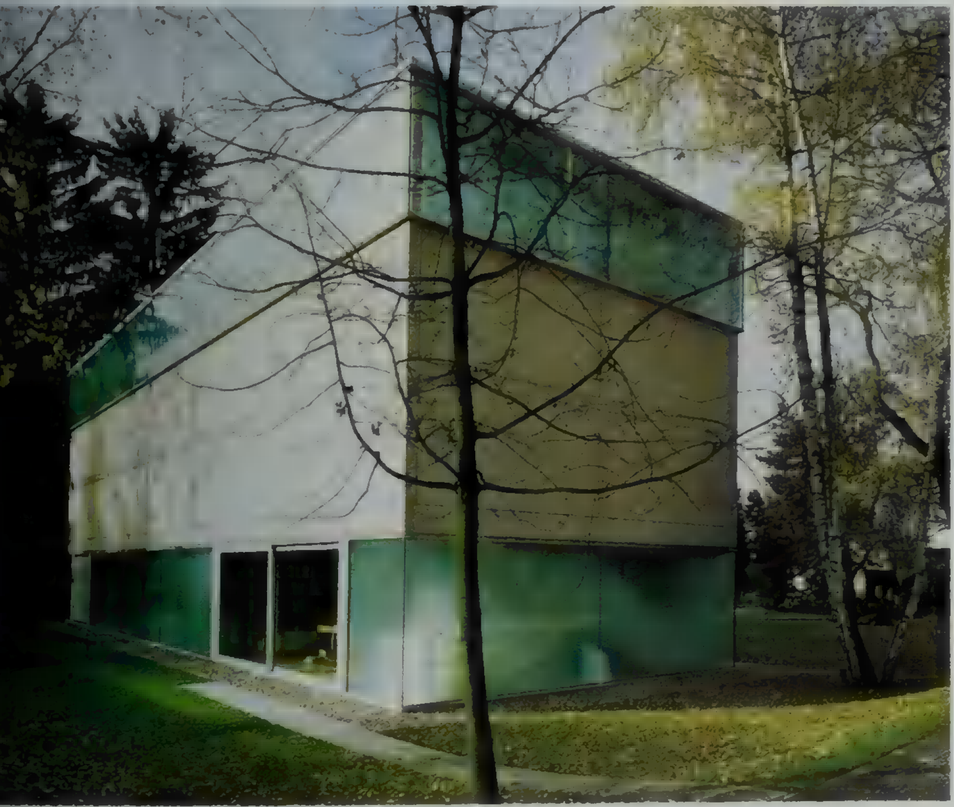


Student Housing: Dijon, France, 1990-1992



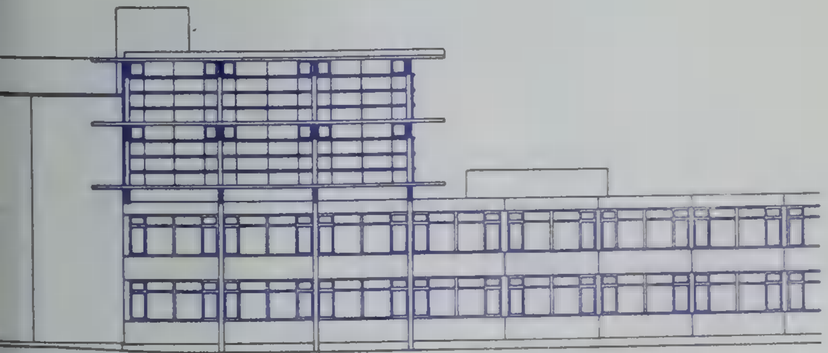
Apartment Building
Basel, Switzerland
1984-1988

Apartments are arranged in a line facing a rear courtyard with a central stair. The structure, which is raised off the ground, is fragile-looking, with the shallow wood balconies and turned-oak columns of the first two floors giving way to thin steel posts on the third floor.

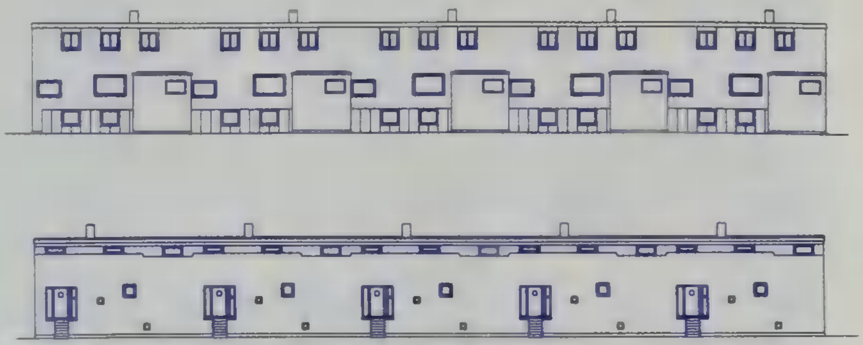


Art Gallery
Munich, Germany
1989-1992

The birch enclosure of the upper floor rests entirely on two concrete "tubes"—one the entry lobby and the other a gate to the garden and house. These tubes span the sunken lower gallery at mezzanine level. The clerestories are composed of separate interior and exterior layers of matte-finished glass, with motorized light-control screens between them.



icola Factory addition: Laufen, Switzerland, 1987-1991



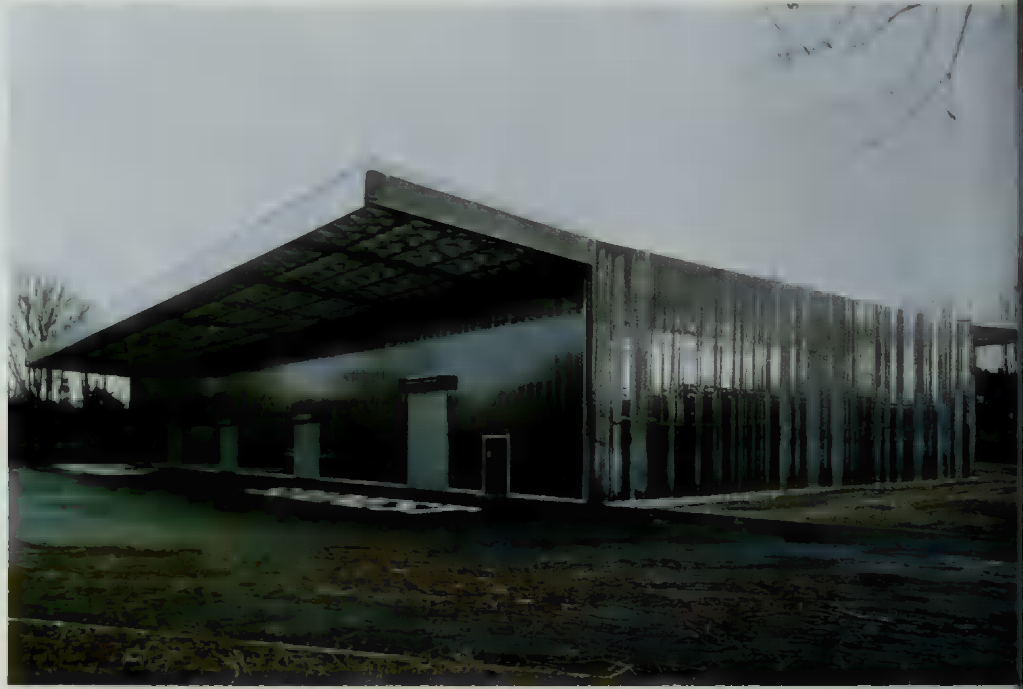
Residential complex: Vienna-Aspern, Austria, 1987-1992

Ricola Europe
Mulhouse, France

Pop Art. This facility for producing, packaging, and storing herbal cough drops is an homage to Robert Venturi's "decorated shed" and Andy Warhol's serial lithographs. The deceptively large structure, which is 100 feet wide by 200 feet long with 25-foot-high ceilings, is supported by a steel frame and braced at its ends by reinforced concrete walls with cantilevered canopies supported by hidden cables. Rainwater on the roof cascades over end walls, which are darkened with iron peroxide stain (middle right).

Interior partitions, the two long exterior walls, and the canopies are a sandwich of honeycombed polycarbonate panels, silkscreened with images of an herbal leaf sprig, a company symbol. The images, at times brilliantly backlit and interrupted by structural members and openings, sometimes opaque and reflective like the water-grazed end walls, help give the building an ethereal presence. Other unrealized firm projects use the building skin as a media screen, including a 1989 proposal for a Greek Orthodox church in Zurich that has marble panels etched with religious icons.

Credits
Client: *Ricola Europe, Inc.*
Architect: *Herzog & de Meuron Architekten—André Maeder, project manager*
Consultants: *Marc Weidmann ([illegible]); Dieter Kienast (landscape)*
General Contractor: *Art et [illegible]*



SORTIE

Commercial and Apartment Building Basel, Switzerland

Heavy metal. Exterior shutters modeled after tree gratings are a cast-iron filigree on the front facade of this mixed-use building. The double-height elevator lobby is paved in asphalt, with an exposed-stone medieval party wall opposite a sheet-glass partition. Above the ground-floor commercial space, apartments overlook a neighboring rear yard from a light well, which is staggered in section like a periscope. The floor-to-ceiling sliding rear windows are protected by metal balustrades and rolling wooden exterior shutters, allowing either total transparency or total closure.

Credits
Client: *Pensionskasse der Basler Staatsangestellten*
Architect: *Herzog & de Meuron Architekten—Dieter Jüngling, Andreas Stöcklin, Mario Meier André Maeder, project team*
Engineers: *Helmuth Pauli (civil); Gerber und Vogt (facades)*
Consultant: *Von Roll (cast-iron)*

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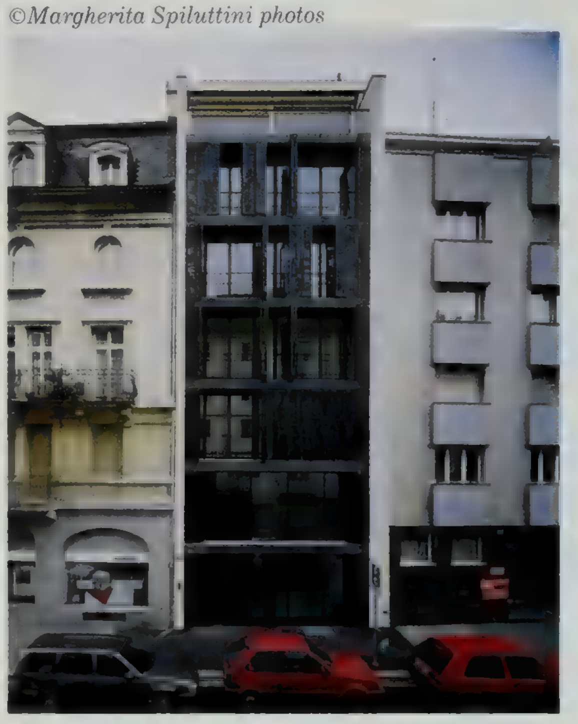

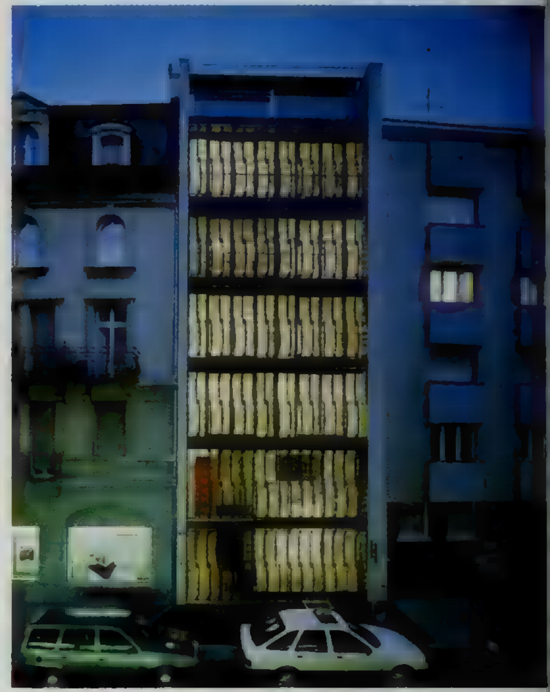

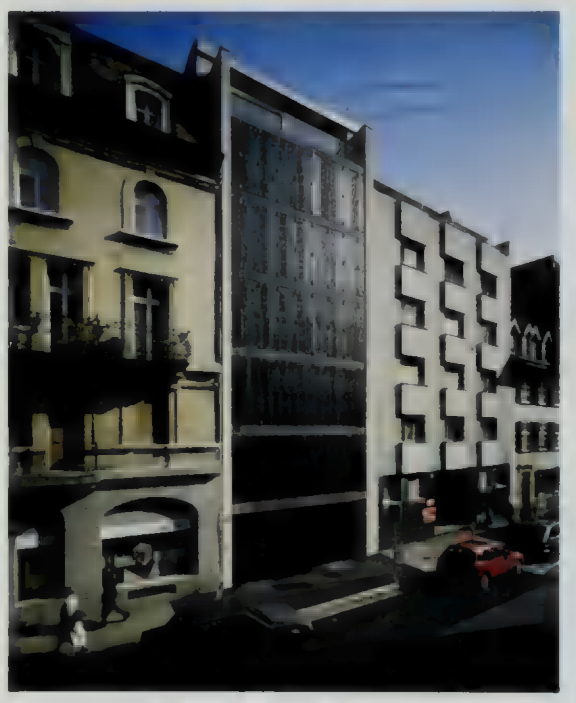

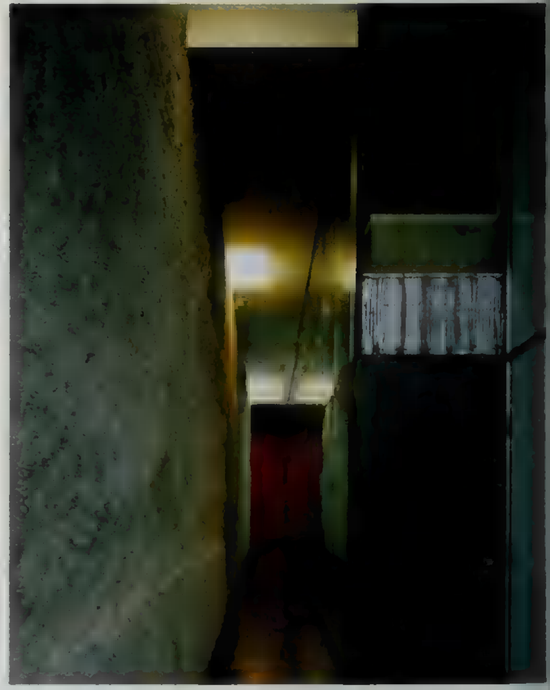

ignal Box
asel, Switzerland

nding strong signals. Part
Herzog and de Meuron's
aster plan for the Basel rail
rds, which also includes an
gine depot and a control tower
w under construction, the
gnal Box houses electrical
itching equipment for tracks,
nals, and related work areas
a six-story insulated concrete
ructure. It is sheathed in strips
8-inch-wide copper, which is
ounted on vertical framing with
gled spacers that gradually
ist the strips open, like vene-
n blinds, over the center of
ch facade where window open-
gs are located. (The detail was
sted at full scale to overcome
e builder's skepticism.) The
pper cladding also acts as a
raday Cage, insulating equip-
ent from electrical
erference.

redits
lient: *Swiss Federal Railway*
rchitect: *Herzog & de Meuron*
rchitekten—Harry Gugger,
rtner-in-charge
roject Manager: *Proplan*
g.

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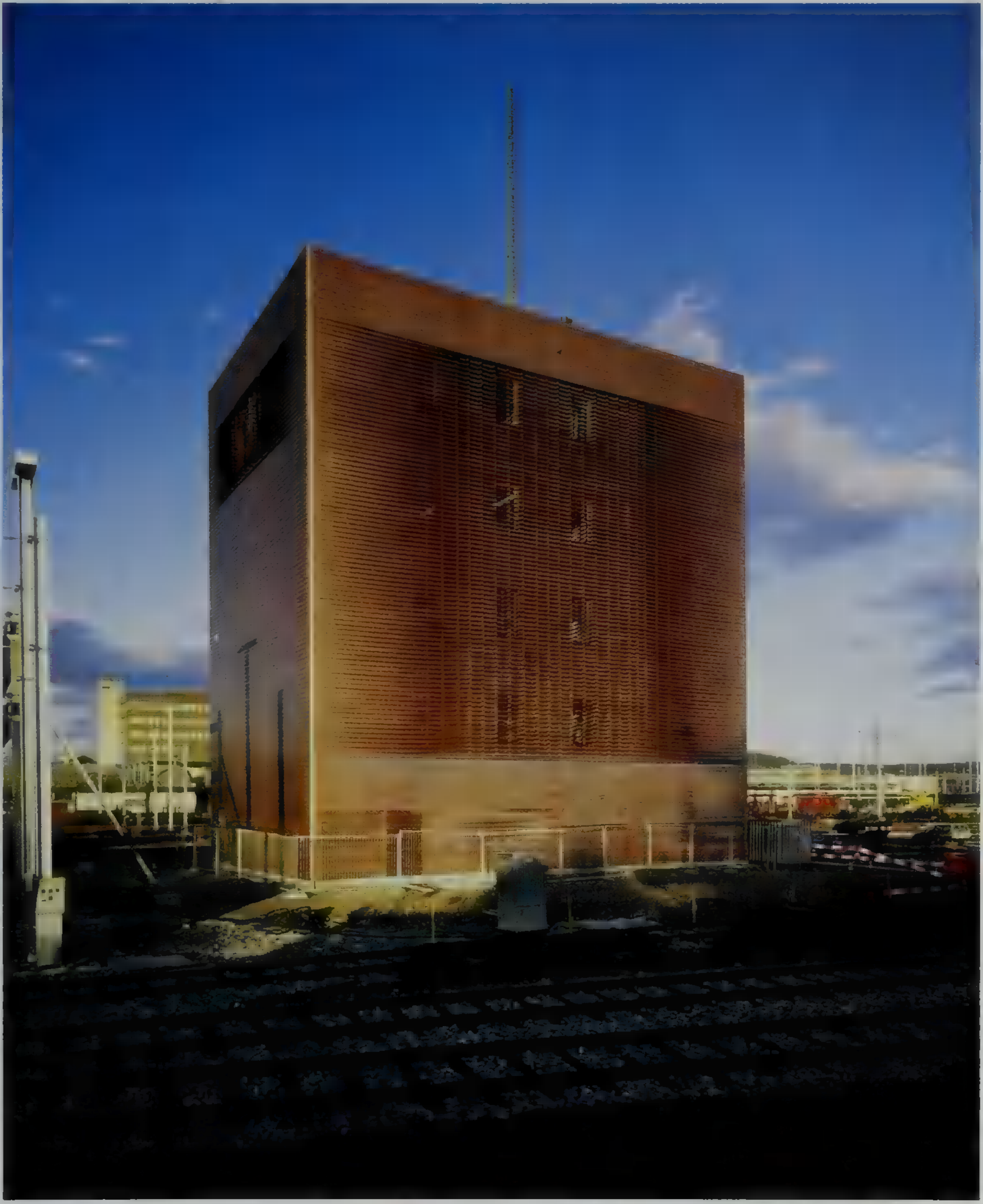
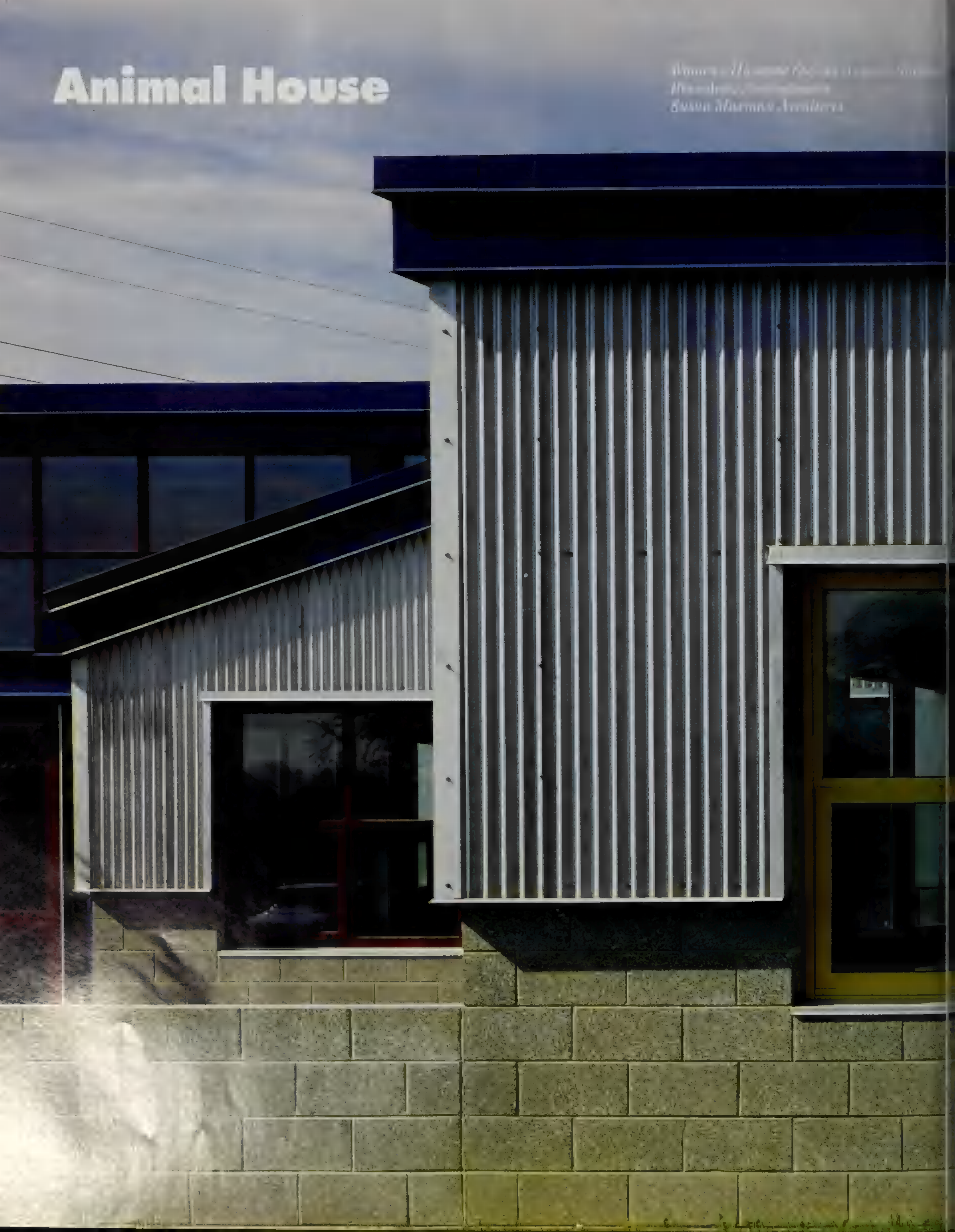


Animal House

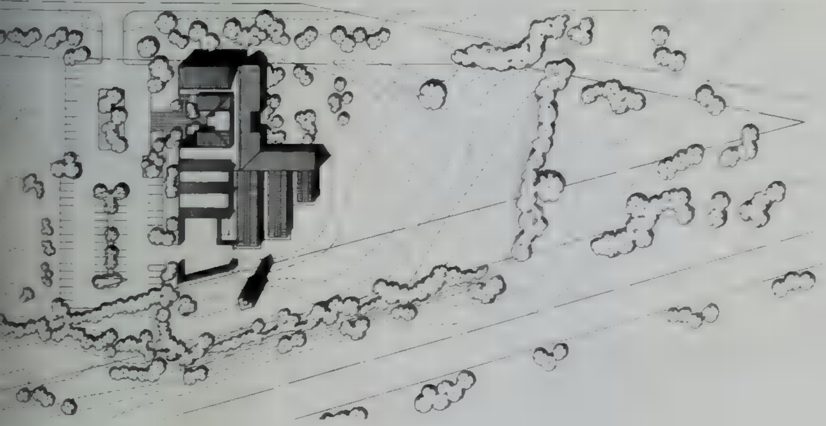
Women's Humane Society Animal Shelter
Bensalem, Pennsylvania
Susan Maxman Architects



Women's Humane Society is the oldest organization dedicated to e humane treatment of abandoned dogs and cats in the nation. But ; previous shelter was located in a Philadelphia neighborhood so ugh that the "throwaway" site they chose for a new building must .ve seemed glorious by comparison, despite its drawbacks. The new :e was bound by a turnpike on one side, a road on another, and rther hemmed in by wetlands, a stream, and a power line supported massive towers. Architect Susan Maxman made the most of these sadvantages by clustering the new building and its parking area on e buildable portion of the site, leaving the wetlands areas open for a ldlife preserve that will one day become part of the Society's comunity outreach programs.

axman's choice of steel as an exterior building skin draws on veral influences, including the power-line towers, but also reflects :r preference for building with recycled and recyclable materials. the interior, she chose a number of building products that are ther made of recycled materials or were chosen for their environentally sensitive makeup: ceramic tiles made of waste glass; CFC-id formaldehyde-free insulation; mats made of tire rubber, and masote bulletin boards, to name a few. The interior of the building organized into three zones: a veterinary clinic, a kennel area, and administrative area complete with a large community room, where itreach and educational programs are conducted. The hard-edged terior reflects the use of long-wearing materials that are necessary here animals must be housed, but is softened by the abundant dayght flowing through the building's many clerestories and skylights.

keeping with the Women's Humane Society's non-profit nature, axman and her consultants made the most of energy-conscious esign to keep future operating costs to a minimum. Some of their actices employed are low cost to say the least—deciduous trees ere planted where they can shade the building, and the structure as oriented to optimize winter heat gain and maximize daylight. A echanical system more sophisticated than might typically be found a building this size uses a variable-volume air system in the admintration zone to allow maximum flexibility for individual temperature ntrol, and to meet the zone's need for a flexible operating schedule. heat-recovery wheel is utilized in the kennel zone, where 10 anges per hour of 100-percent outside air is supplied to keep airality levels high. The puppy kennel has radiant floor heating to eep the space from being drafty, without raising the room temperare. Most of the lighting is fluorescent, eliminating incandescent mps. As Maxman says, "If you can make a building energy efficient, hy not do it? There's just no reason not to." *Charles Linn*



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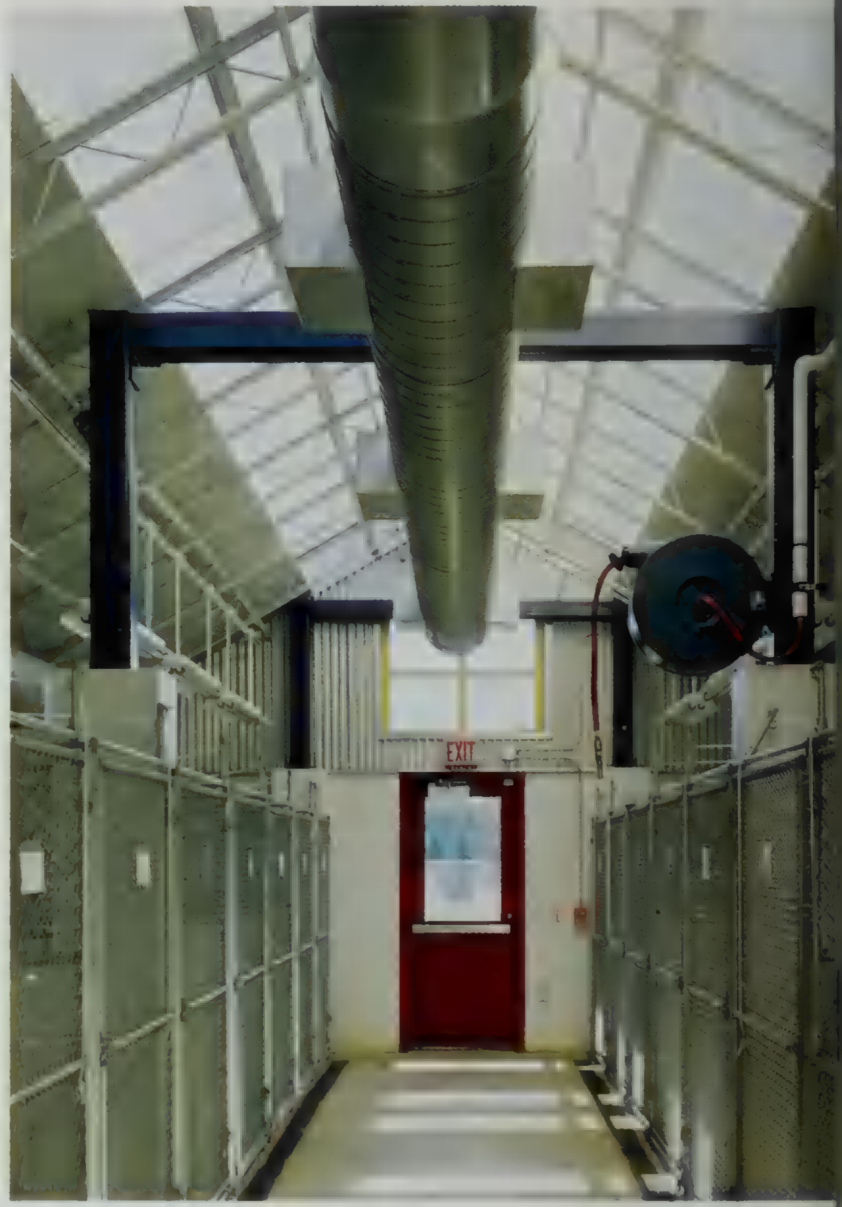
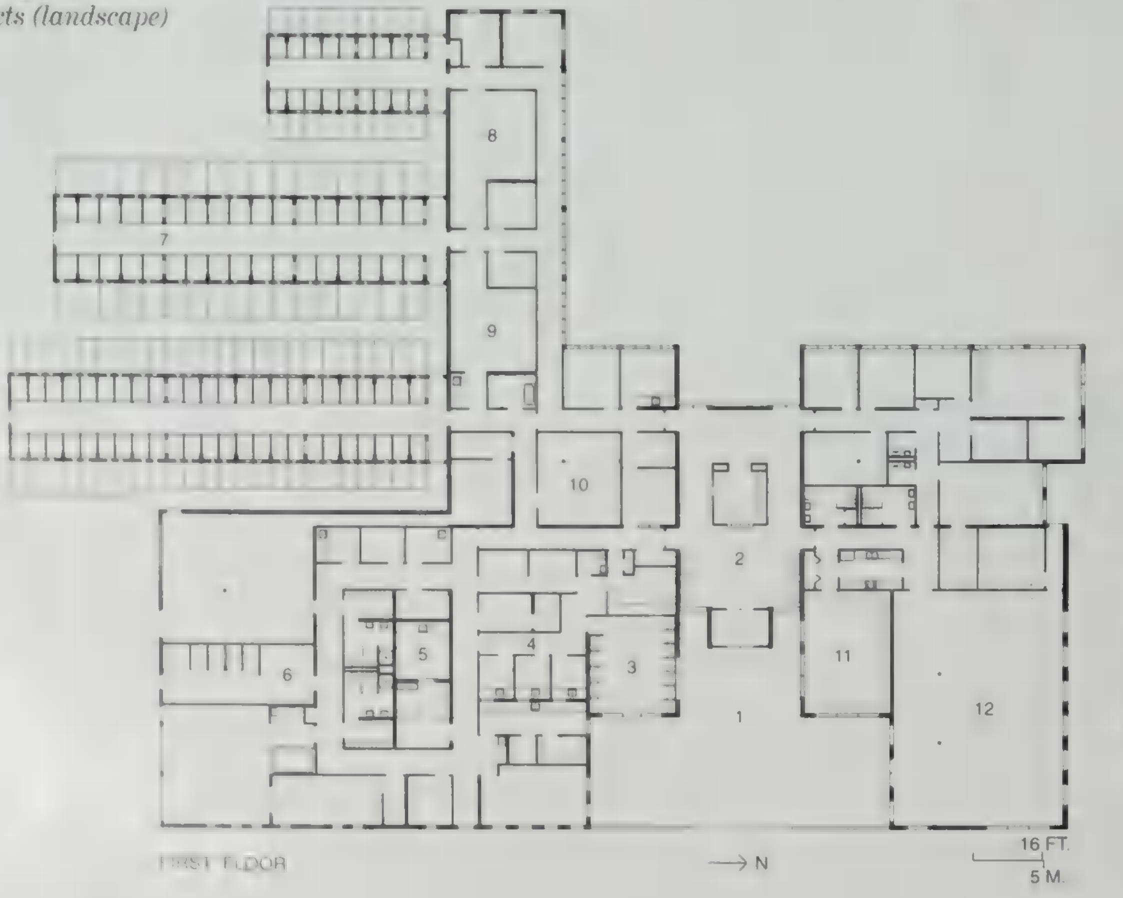
The Women's Humane Society Animal Shelter does not look particularly high tech, but it incorporates many sustainable design principles, starting with its use of a "throwaway" site. Not only does the shelter employ materials made from a high percentage of recycled waste, it also has energy-efficient mechanical, electric lighting, and daylighting systems.

Continuous ridge skylights over the corridor in the kennel area (right) offsets the need for electric lighting during daylight hours as well as providing a more pleasant environment for the animals. Clerestories (opposite) were also used to provide daylighting. Both windows and clerestories were glazed with insulated glass units supplied with a low-e film between panes. Windows on the north, south, and east are "tuned" to allow more light in than those on the west.



Credits
Women's Humane Society Animal Shelter
Bensalem, Pennsylvania
Architect: *Susan Maxman Architects—Susan Maxman, principal; Jeffery Hayes, project architect; Robert Hotes, Linda Braley, Robert Rudloff, Kathryn Cleveland, project team*
Engineers: *Ortega Consulting (structural); Bruce E. Brooks & Associates (mechanical); MGL Inc. (civil); Donald F. Nardy & Associates (electrical); NTH Consultants (geotechnical)*
Consultants: *Clanton Engineering (lighting); Ensar Group (energy analysis); Lager-Raabe Landscape Architects (landscape)*



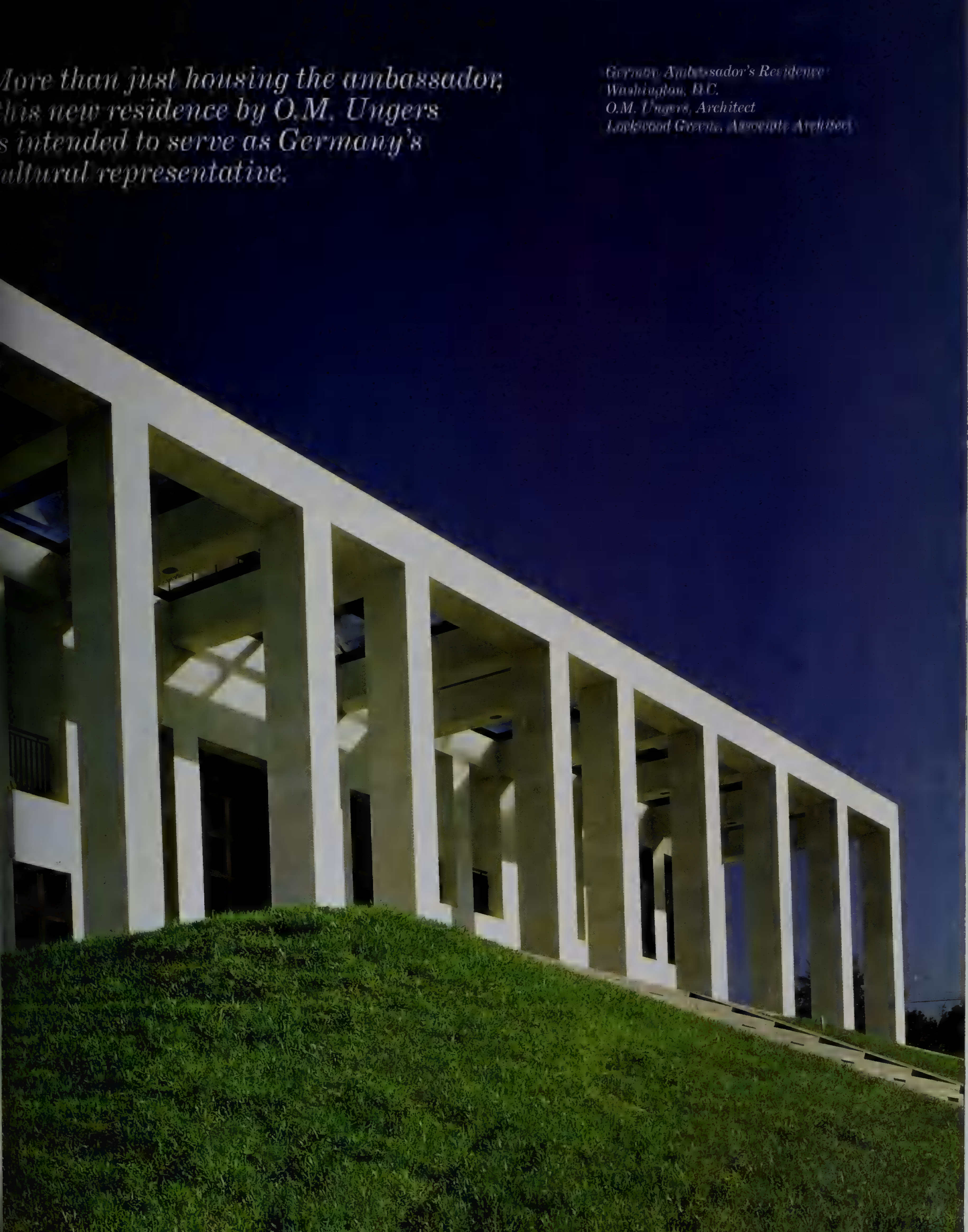
1. Entry courtyard
2. Reception
3. Clinic waiting
4. Exam rooms
5. Surgery
6. Isolation kennel
7. Kennel area
8. Cat adoption
9. Cat holding
10. Puppy holding
11. Conference room
12. Community room

EX

Embassy Suites

More than just housing the ambassador, this new residence by O.M. Ungers s intended to serve as Germany's ultural representative.

German Ambassador's Residence
Washington, D.C.
O.M. Ungers, Architect
Lockwood Greene, Associate Architect



The Germans have a word for it—*Gesamtkunstwerk*—or total work of art. And by most measures, the new residence for the German ambassador in Washington, D.C., earns the title. From silverware and china to siting and landscaping, every aspect of this building has been either designed or supervised by architect O.M. Ungers. Even door handles. Nothing has been left to chance or last-minute improvisation.

"This is a building that represents Germany," says Ungers. "The Ambassador is only a guest here. It is not his private house." Indeed, an important challenge in the official program was to showcase German culture and somehow express a national identity. Rejecting a futurist approach with all kinds of flashy new technology as inappropriate for a country with a 2,000-year history, Ungers believed that a restrained Modern design employing the highest quality craftsmanship would be the best way to represent his native land.

The official residence is also intended to respond to the cultural history of the country in which it is located. Having taught at Cornell University for much of the 1970s and '80s, Ungers was familiar with the Greek Revival architecture popular in 18th- and 19th-century America. In fact, a late-19th-century mansion was on the site when he entered the design competition that led to his selection. Although his original design preserved the old mansion, the German government determined that the old structure was too deteriorated to be saved. In the end, Ungers maintained at least the memory of the old house by incorporating a Modern version of a Greek Revival portico, coffered and barrel-vaulted ceilings, and a great Palladian window in the main reception hall.

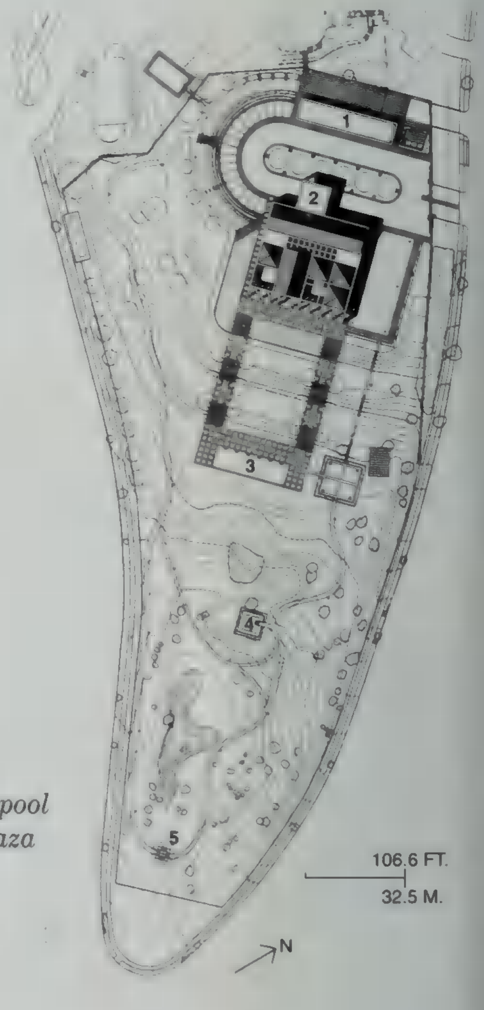
A concrete-frame structure faced with Vermont limestone that is 6 inches thick, the residence is a formal presence sitting atop a terraced hill. A 25-by-25-inch module provides a constant for all of the building's dimensions, while precise joints, reveals, and edges bespeak a German love of detail and accuracy. Because every line and edge has to align perfectly to maintain the architect's strict esthetic, the residence has a tolerance for error that approaches zero. When asked about the severity of the building, Ungers is unapologetic. "It has a certain restraint, coolness, and formality that is proper for an official German building."

The 30,000-square-foot building cost $18.9 million to build, landscape, and furnish. Located next to the existing chancery or office building (designed by Ungers's teacher Egon Eiermann in 1964), the residence includes the ambassador's living quarters and guest rooms on the second floor and official reception areas and support services on the first. The basement has a bar and lounge, as well as mechanical rooms. On the first and second levels, outdoor rooms are carved out of the building's mass: a skylighted portico that acts as an extension of the main reception and dining areas on the ground floor, and two square terraces off the ambassador's living quarters on the top floor.

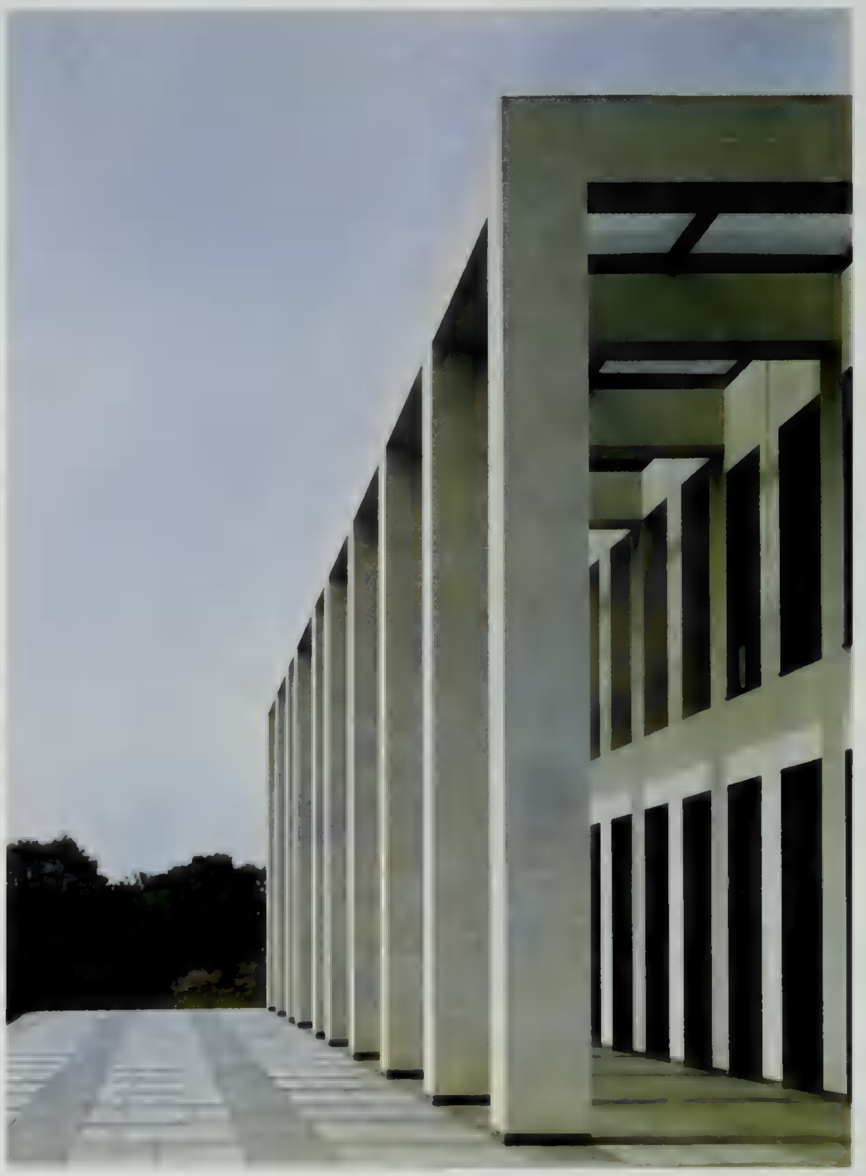
In the public rooms on the ground floor, the work of contemporary German artists is integrated with the architecture. Rather than being added after the building was completed, each painting, mural, rug, [illegible] was part of the architect's plan. In fact, paintings are not hung in the traditional way, but are recessed so they are flush with the walls. Doors, windows, cabinets, and all other details are also flush with [illegible] surface they touch. No detail escaped the architect's [illegible] for thermostats. A lifelong Modernist, [illegible] interested in new directions. I want to refine [illegible] this residence is my most refined and complete work [illegible] *Clifford A. Pearson*

Up Close

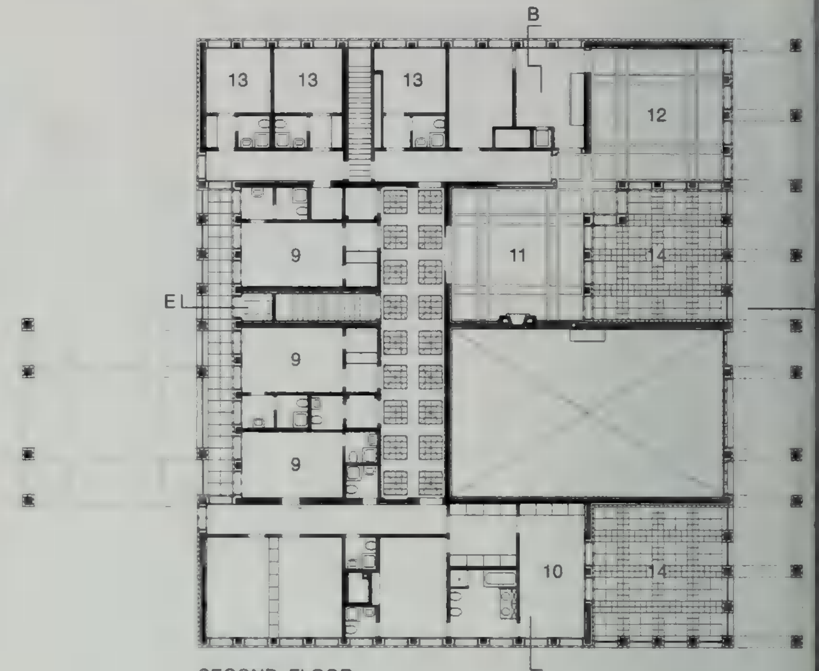
The landscape of diplomacy. Set on top of a hill in a residential neighborhood behind Georgetown, the ambassador's new residen enjoys views of the Potomac River in the di tance from a triangular site acquired by the German government adjacent to its 1964 chancery building. Like everything else ab this residence, the landscaping was treated an integral part of the architectural design. Landscape architect Bernhard Korte of Dusseldorf worked with O.M. Ungers to design a series of formal terraces that cascade down the hill to a reflecting pool an then to a more picturesque garden. Twin staircases made of the same basalt stone us to pave the outdoor portico of the house tak visitors down the hill. "The formal terraced garden serves as a transition from the man-made to the natural," explains Ungers. In th informal gardens beyond the reflecting pool narrow paths stop at a wooded seating area set into the ground, then wind around a sma pond and end at a painted steel pergola planted with vines.



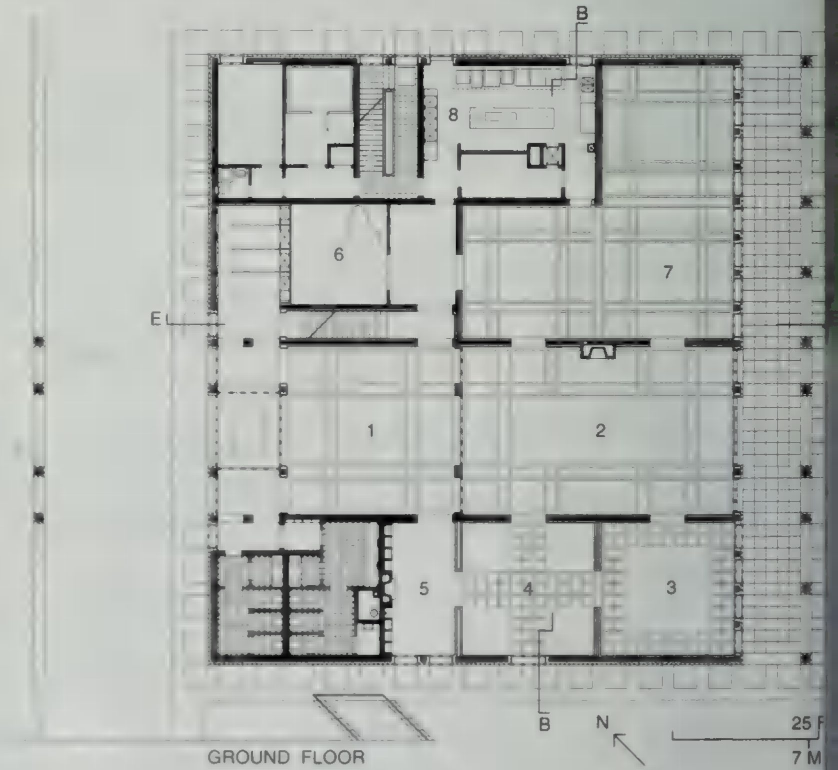
1. *Garage*
2. *Residence*
3. *Reflecting pool*
4. *Sunken plaza*
5. *Pergola*



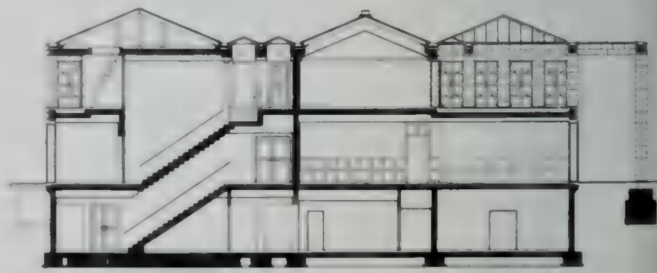
Built for formal receptions, the residence has a large porte-cochère on its west side (opposite bottom) and a reinforced lawn that allows parking around the driveway. To handle parties of 700 people, the covered portico facing southeast (above) can act as an extension of reception areas inside. The south elevation (opposite top) has a residential look in keeping with the area.



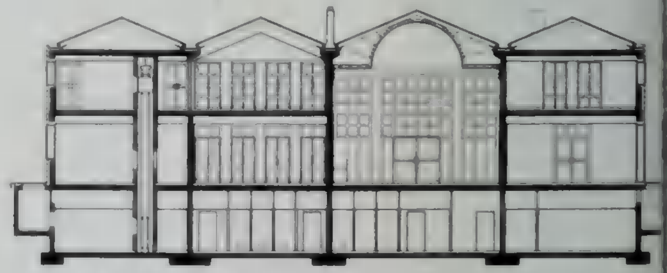
SECOND FLOOR



GROUND FLOOR

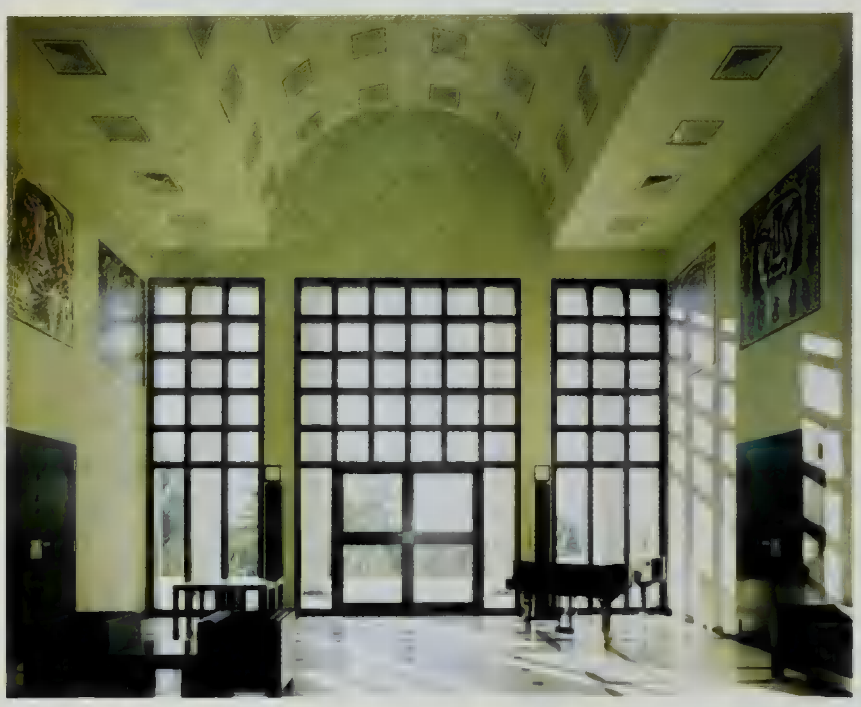


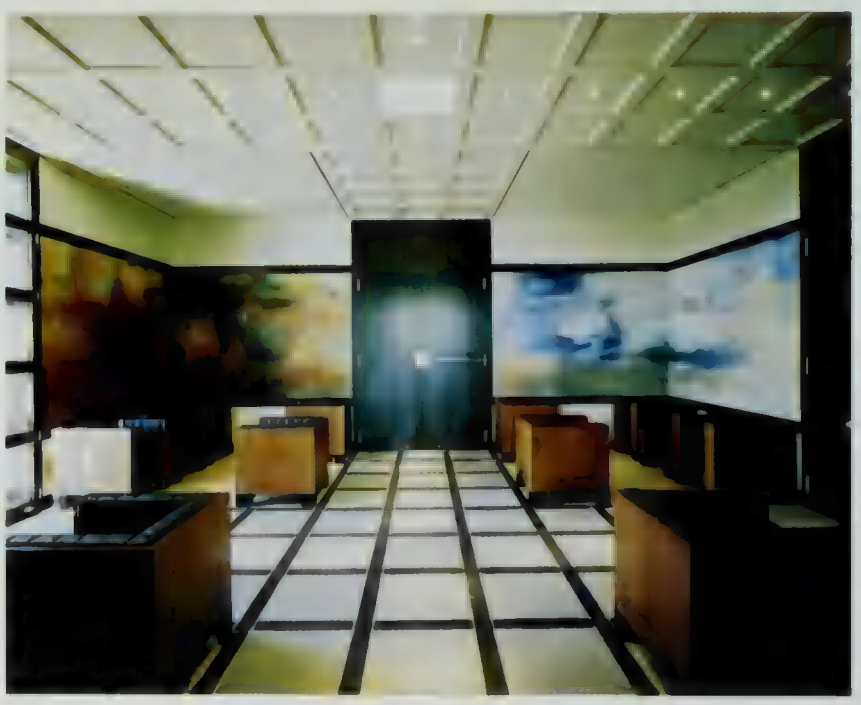
SECTION E-E



SECTION B-B

1. *Entry*
2. *Reception*
3. *Women's sitting room*
4. *Men's sitting room*
5. *Library*
6. *Parlor*
7. *Dining*
8. *Kitchen*
9. *Guest*
10. *Ambassador's suite*
11. *Living room*
12. *Dining*

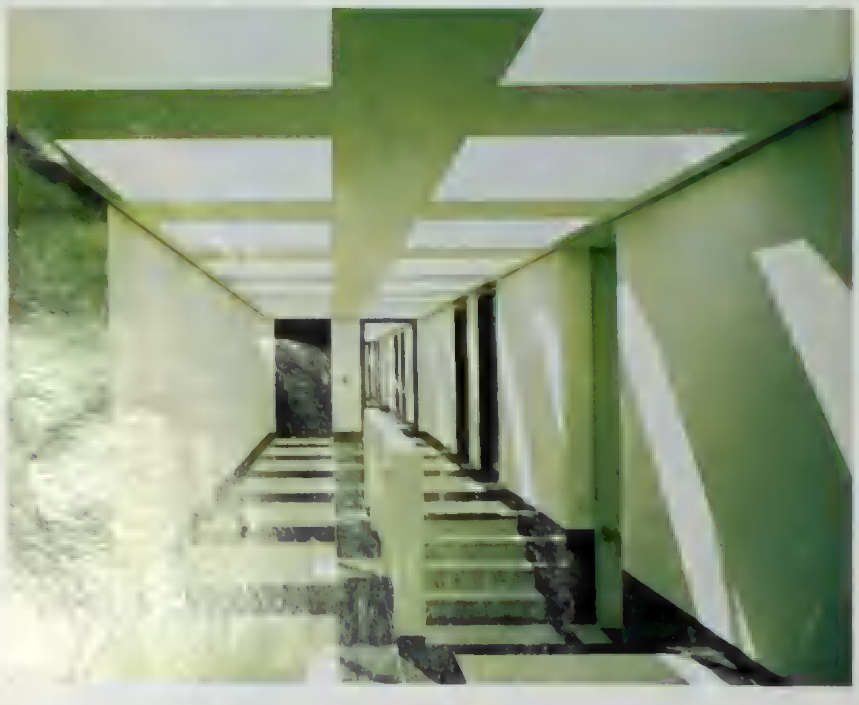


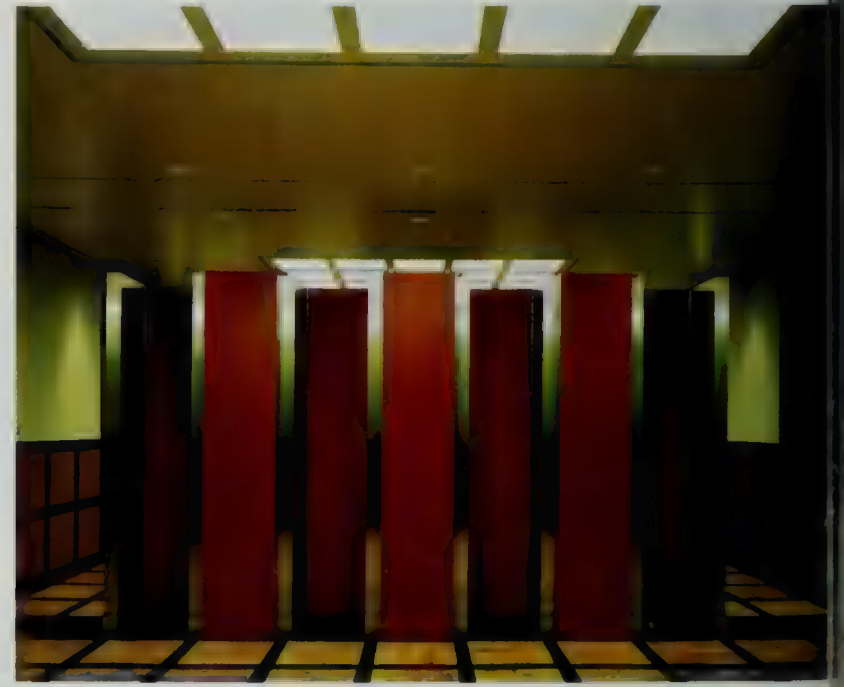


Ungers relied on natural mat
als and neutral colors for
interior surfaces. "We used
artwork to bring strong colors
into the building," he explain
The only double-height room,
main reception hall (left top)
grandiose space enlivened by
series of 12 paintings by Mar
Lueppertz, set flush into the

The men's sitting room (left
middle) has wall paintings by
Christa Naeher. The hallway
private quarters on the secon
floor receives sun from pyram
dal skylights (left bottom). A
screen by Simon Ungers can
divide the dining area (below)
In the entry hall (opposite), a
painting by Gerhard Merz pr
vides a dose of color.

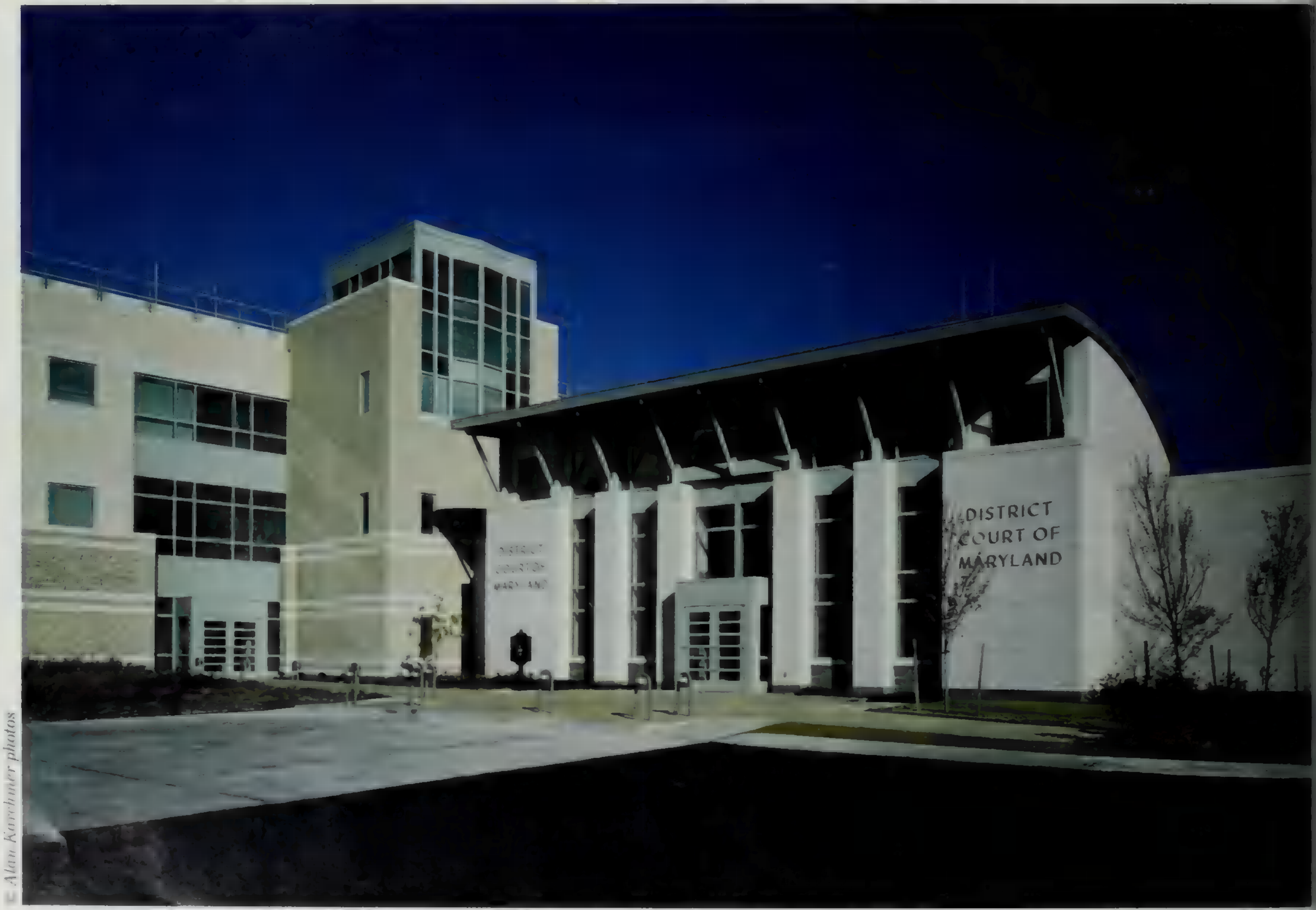
Credits
German Ambassador's Reside
Washington, D.C.
Client: *Federal Republic of Germany*
Architect: *O.M. Ungers, Arch*
tect—O.M. Ungers, Ingo
Schrader, Peter Kretz, Ricard
Sargiotti, Simon Ungers
Associate Architect: *Lockwo*
Greene
Landscape Architect: *Bernhard Korte*
Engineer: *Lockwood Greene (structural and m/e)*
General Contractor: *Struct*
Tone, Inc.





Justice for All

Courthouse construction is in a miniboom. Along with city-hall and state-capital work, it forms a diminutive, but fast-growing category in which, according to F. W. Dodge, the number of projects completed each year leapt forward almost 100 percent during just the four years ending in 1994. In 1995, many more courts are likely to be built or greatly remodeled and expanded as government at every level races to catch up with a burgeoning backlog of criminal prosecutions and civil



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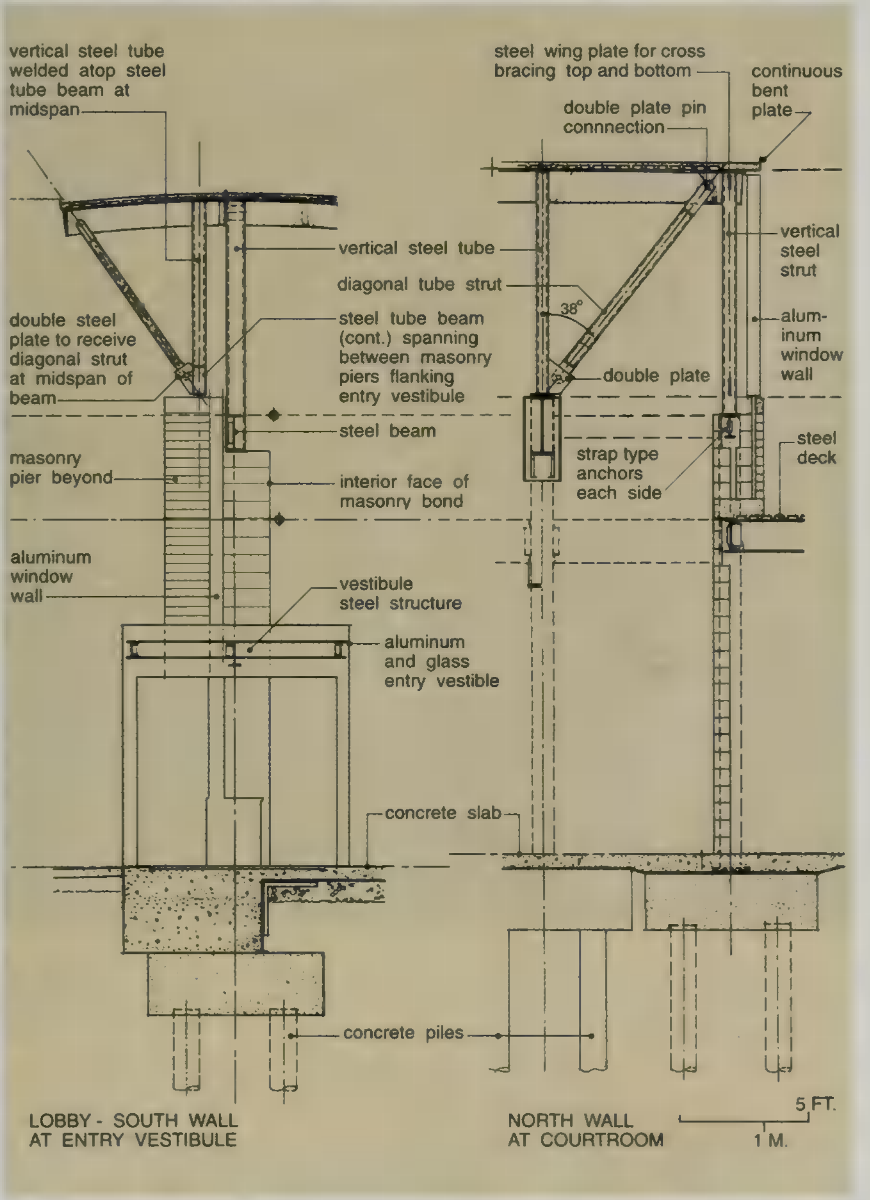
District Court

Ocean City, Maryland
Ayers/Saint/Gross Architects

Ocean City is far from being a typical town. Located on a barrier island nine miles long and only five blocks across at its widest, its population, sparse in winter, often swells to more than 300,000 in summer, when the town becomes Maryland's second largest city. Many of this seasonal influx are young people who seek beach pleasures. They are often rambunctious—straining police and emergency-medical services beyond even the norma demands created by such a larg multitude.

In many respects, this town's new state district court exemplifies the latest in judicial-design approaches nationwide. First, while maintaining its own distin visual identity (right above), it i built in combination with a large

roceedings currently housed in old or inadequate
cilities. This can benefit average-size, non-
ecialized architectural firms, especially when
w judicial facilities are located in smaller
unicipalities—the focus of this month's study.
ut these firms will have to do some homework.
andards for courts are changing. Courtroom sizes
we been growing—in most state facilities, from
400 to 1,700 square feet since 1989—to hold more
ectators, participants, and electronic translators, recorders, and crime-scene simulators. Security is getting tighter to protect against growing violence triggered by even minor charges—a trend first seen in the family courts. The results show up clearly in Ocean City (below). Hearing rooms proliferate to keep pace with the number of indictments and, in civil courts, settlements. ADA requirements challenge time-honored traditions, such as the judge's seat located two steps above all other participants'. Charles K. Hoyt

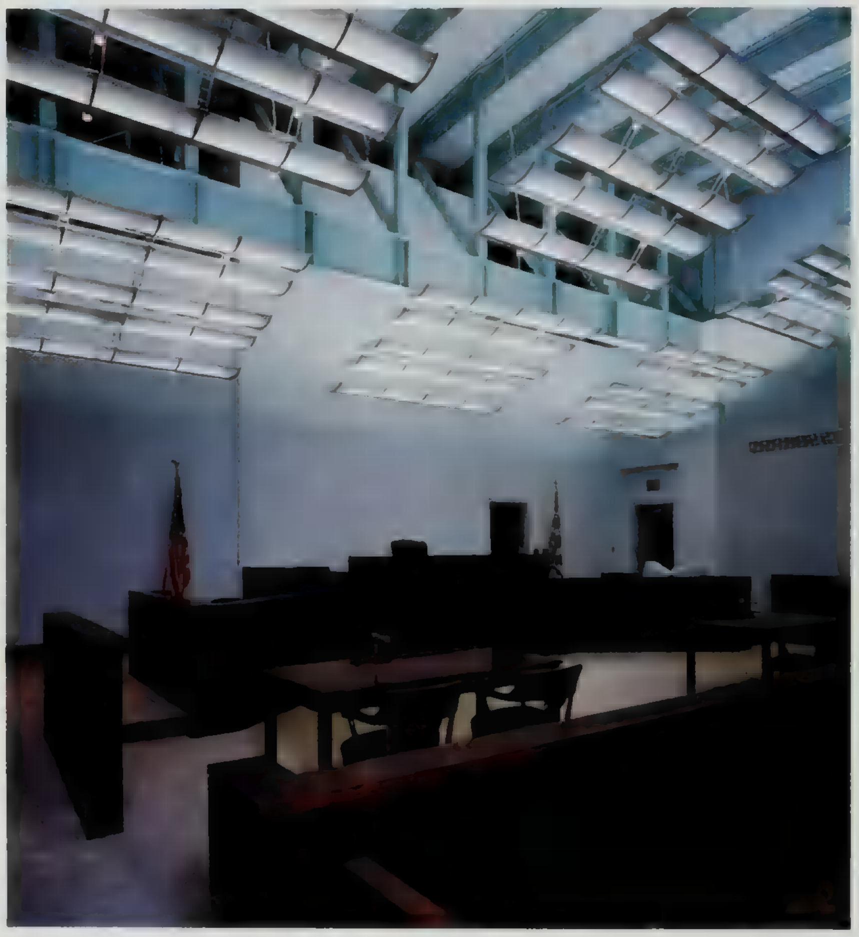

vertical steel tube welded atop steel tube beam at midspan
steel wing plate for cross bracing top and bottom
continuous bent plate
double plate pin connnection
vertical steel tube
diagonal tube strut
36°
vertical steel strut
double steel plate to receive diagonal strut at midspan of beam
steel tube beam (cont.) spanning between masonry piers flanking entry vestibule
double plate
aluminum window wall
steel beam
steel deck
masonry pier beyond
interior face of masonry bond
strap type anchors each side
aluminum window wall
vestibule steel structure
aluminum and glass entry vestibule
concrete slab
concrete piles
LOBBY - SOUTH WALL AT ENTRY VESTIBULE
NORTH WALL AT COURTROOM
5 FT.
1 M.

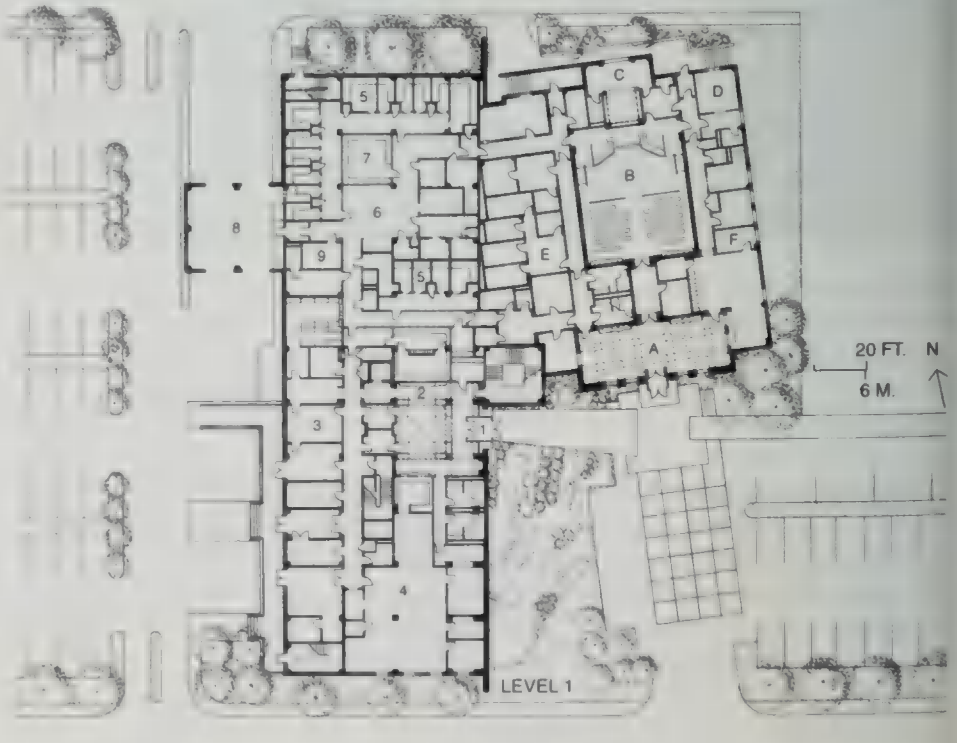
ructure that houses a number
related municipal functions.
ese include emergency
edical treatment, disaster
ntrol (primarily for major
orms), and—most important to
e courts—a police station, com-
ete with holding cells and the
test in fortified electronic sur-
illance and security-control
nters (plan overleaf). This
nter serves the courts as well, and is part of the greater efficiencies that combined facilities can produce, including shared maintenance and ease of prisoner transfer between detention and judicial process.

A second characteristic of many new courthouses is the scrupulously tight control over isolated circulation paths for the public, the judge, and especially those under arrest. Entry and exit to and from the building, interior areas designated for each type of user, and major spaces are through at least a single set of two successive doors, each opening only after the previous one is shut. This sally-port arrangement is controlled by the security-center operator, who can lock both doors when electronic surveillance indicates a problem.

A third new judicial standard shows in the large size of the courtroom itself. Its 2,000-square-foot area exceeds most states' pre-1989 standards by some 40 percent. The area in front of the judge for lawyers and district attorney's staff has grown as well. While the arrangement of judge's bench, witness stand, and jury box does follow the tradition of being elevated above the floor, the required handicap access is supplied by ramps (below left). The architects have created a bright courtroom atmosphere, consistent with the building's overall design, through suspended overhead lighting that seemingly floats in high-tech clouds. They have also provided an amenity increasingly difficult to achieve in the face of current isolated-access requirements, which virtually enclose courtrooms with corridors: during the day, outside light streams in—not through eye-level windows that would violate security requirements, but through clerestory windows high above the judge's bench. These windows are detailed to resemble those above the lobby (sections previous page) and extend design consistency of public areas from front to back. A final element required by current judicial process is the large area devoted to hearings, legal counseling, and arraignments located between the courtroom and the Public Safety Building. Because of the strict national requirement for the separation of juvenile, women, and men prisoners in criminal courts, Ayers/Saint/Gross has divided this area into individual rooms and clustered those rooms into isolated groupings.

Although typical of new court standards in most ways, Ocean City's court differs from many other judicial facilities due to its unique location. First, its short season of intense use means tha for long periods there is no use for many ancillary facilities in both buildings. To respond to this potential maintenance problem, the architects placed a self-sufficient grouping of some functions for year-round use





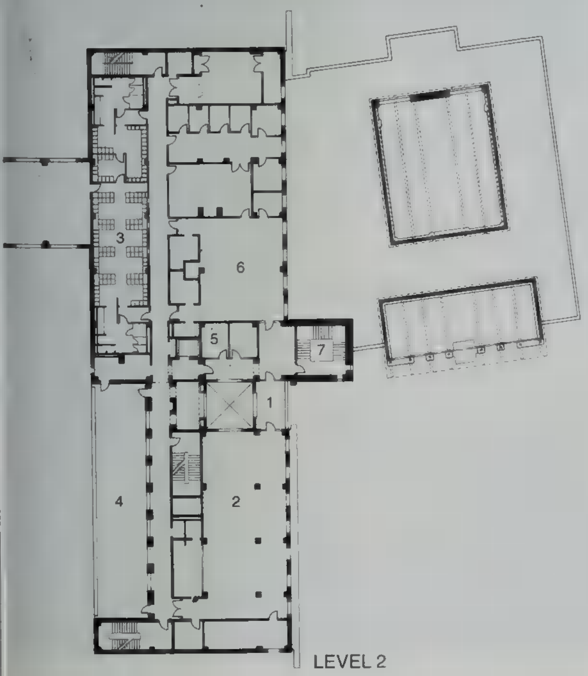
1. *Entry*
2. *Lobby*
3. *Offices*
4. *Records*
5. *Holding cells*
6. *Booking*
7. *Security center*
8. *Sally port*

A. *Lobby*
B. *Courtroom*
C. *Judge*
D. *Jury*
E. *Hearing rooms*

und the square stairwell
ding to the disaster-control
ver between the two public
bies. These include four
ding cells monitored from
reception desk in the Public
fety Building and several adja-
t hearing rooms near the
rt's lobby. This allows many of
other spaces in the northwest
ner of the complex to be shut
wn. Another unusual aspect of
complex is its structure.

Concrete in the public-safety building and steel frame in the courts (to span the large main room and give a lighter visual effect), both systems were built with the strength to withstand heavy storms even if a five-foot depth of sand around their pile foundations eroded away. *C.K.H.*

Credits
Ocean City Public Safety and District Court Building
Ocean City, Maryland
Owner: *Town of Ocean City*
Architect: *Ayers/Saint/Gross—Glenn Birx, Richard Ayers, David Dymecki, James Patz, Luanne Greene, Earl Purdue, Mark Peterson, Steve Longo, project team*
Engineers: *LPJ,Inc. (structural); Gipe Associates (mechanical/electrical); Davis-Brown, Bowen & Friedel (civil)*
Consultants: *Graham Landscape Architecture (landscape); Forte Design (interiors); Carter Gole Associates (programming); Lighting Design Collaborative (lighting)*
Construction Manager: *Town of Ocean City*



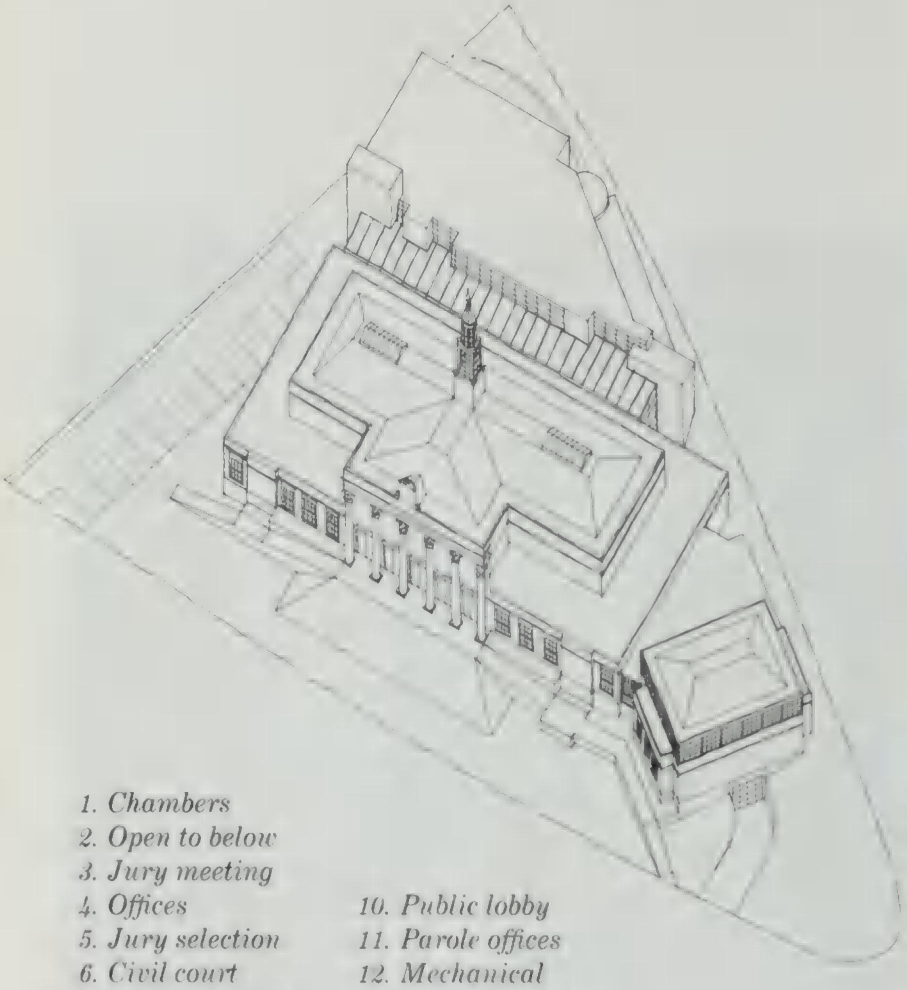
1. *Pressroom*
2. *Dispatch*
3. *Lockers*
4. *Staff terrace*
5. *EMS offices*
6. *EMS training*
7. *Stairs to disaster control and observation tower above*

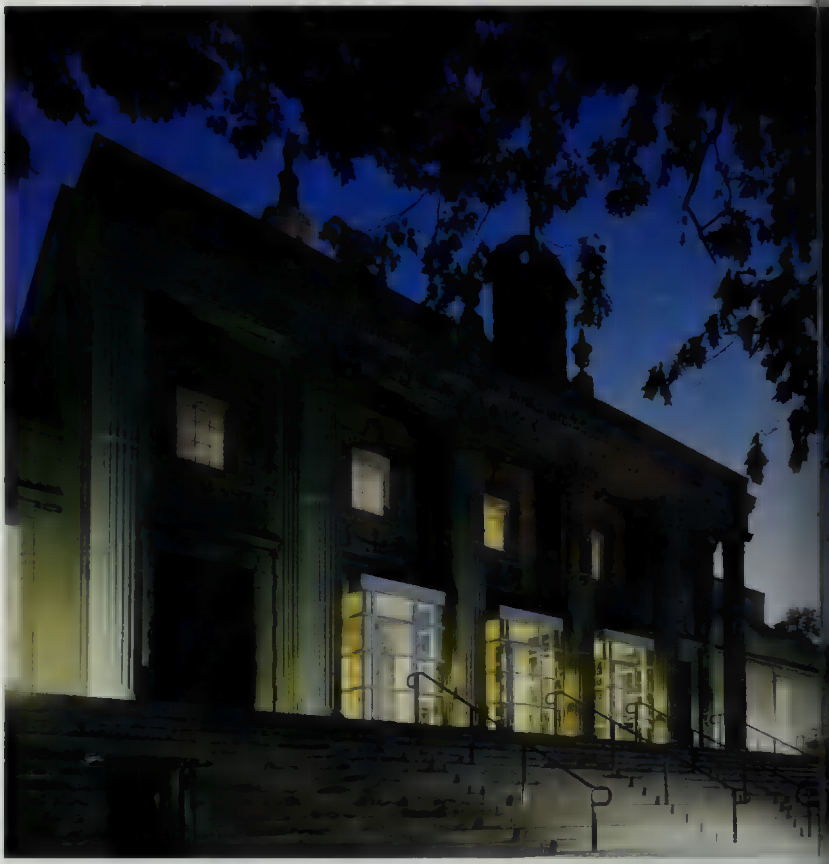
Ocean City's new $8.5-million, 55,000-square-foot District Court and Public Safety Building creates a civic presence where there were once only city departments in scattered makeshift quarters. Both buildings have split-block cladding, and the architects have differentiated the courts by a lighter color (similar to traditional limestone), a larger scale, and a slightly shifted axis. A disaster-control center (opposite right) is located in a tower between the two structures and is topped with an enclosed observation deck. Court lobby is above, left, and Public Safety lobby above, right.

West Roxbury District Court

Jamaica Plain, Massachusetts
Elkus/Manfredi Architects

Jamaica Plain's 1922 courthouse is a symbol of strong civic identity that the town was anxious to preserve—complete with noble steps and colonnade entrance that clearly speak of the dignity of the law. "The building has a clear parti, including its axial circulation, that we did not want to change," says Elkus/Manfredi Architects partner-in-charge David Manfredi. The state called in his firm because the building was not only badly lacking vita mechanical and electrical systems to meet current usage, b also in the number of hearing and courtrooms, administrativ offices, detention and processi areas, and required separation functions—including juvenile from adult proceedings, and is lated circulation for judges, pu lic, and accused. A new progra called for more than doubling existing space on a tight triang





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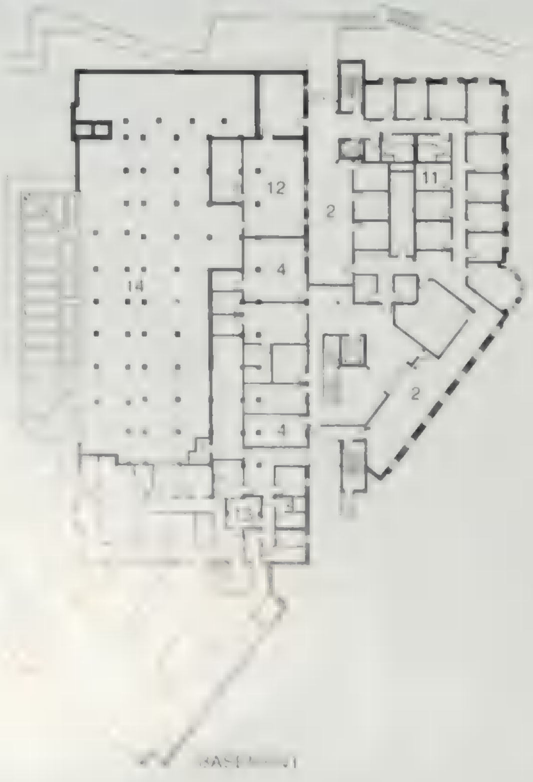
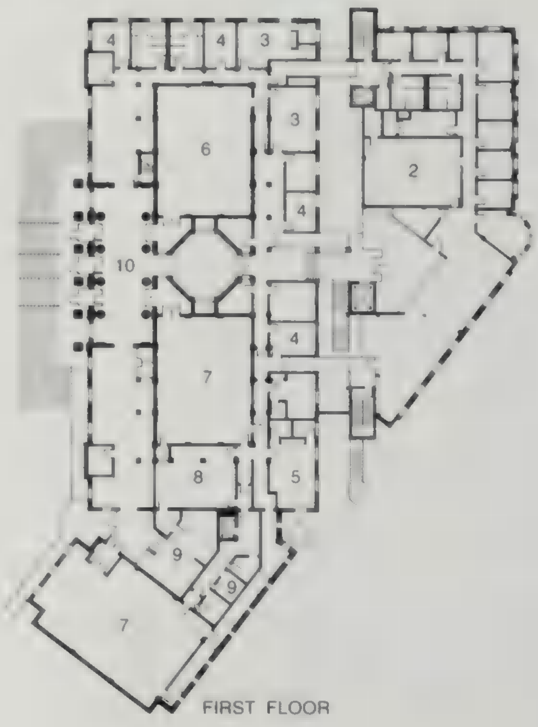
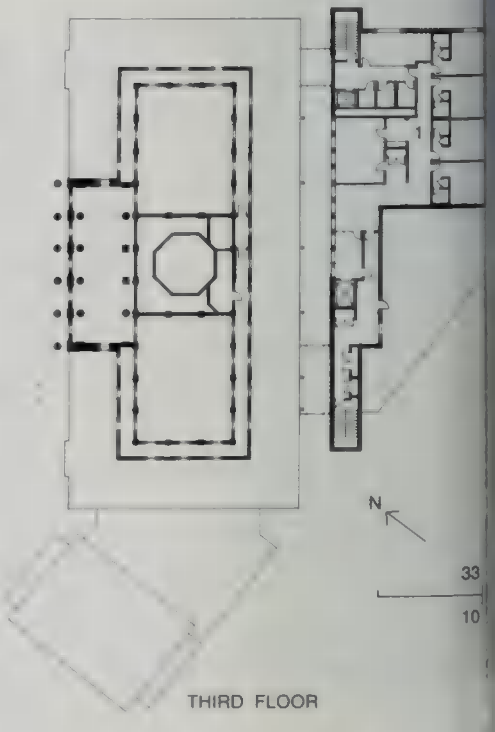
1. *Chambers*
2. *Open to below*
3. *Jury meeting*
4. *Offices*
5. *Jury selection*
6. *Civil court*
7. *Criminal court*
8. *Juvenile court*
9. *Holding*
10. *Public lobby*
11. *Parole offices*
12. *Mechanical*
13. *Security center*
14. *Crawl space*
15. *Sally port*



BASEMENT



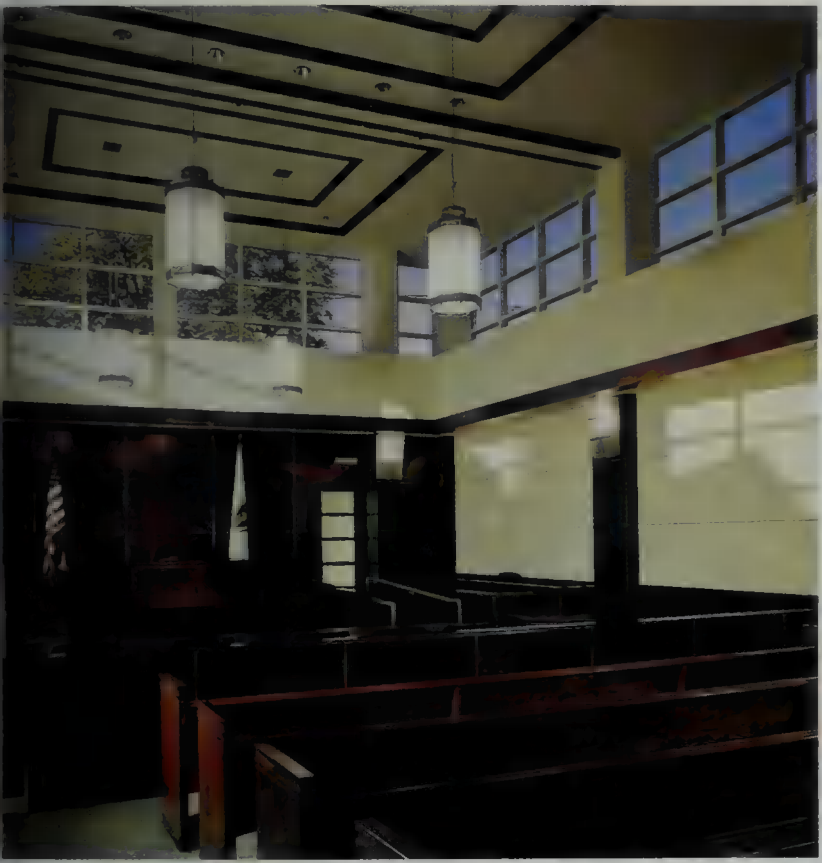
FIRST FLOOR

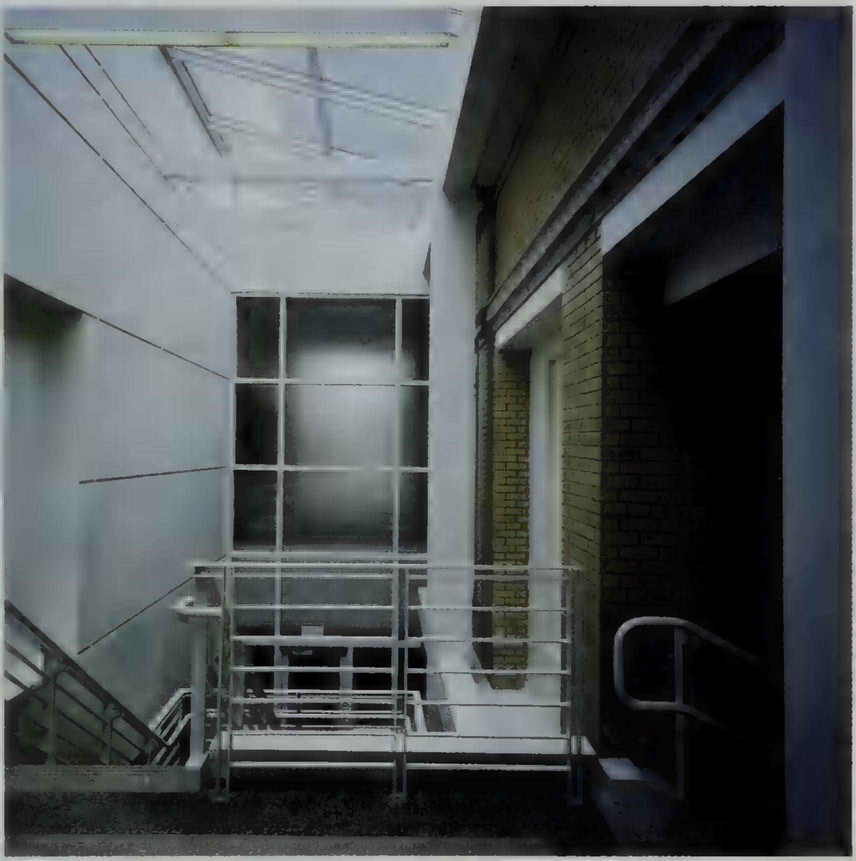


THIRD FLOOR

site surrounded by houses. nfredi's team determined that ditions should not just enhance existing building's character, t clearly express current usage d have a scale transitional to residential neighborhood. e ample original courtrooms re re-stored. The eastern m was designated for civil ses and the western one for minal. This way, an addition to ovide isolated prisoner access and an all-new courtroom could be confined to one side of the building. Extensive holding cells and a sally port serve this area from the floor below. Along the south side of the original building, a private corridor for judges was created from former public space. It connects with a three-story addition housing their chambers on the top floor and offices on the floors below.
C. K. H.

Credits
West Roxbury District Court
Jamaica Plain, Massachusetts
Owner: *State of Massachusetts*
Architect: *Elkus/Manfredi Architects—David Manfredi, principal-in-charge; Samuel Norod, project manager; William Barry, Joseph Carroll, Elizabeth Lowrey Clapp, Barbara Clement, Katherine Cohen, Peter Merrell, Betsy Roosa, Randall Stone, Samuel Volcheck, Michael Whitmore, project team*
Engineers: *Shekar Associates (mechanical), Cosentini Associates (electrical), Boston Building Consultants (structural), Dacdalus Projects, Inc. (costs)*
General Contractor: *Metric Corporation*





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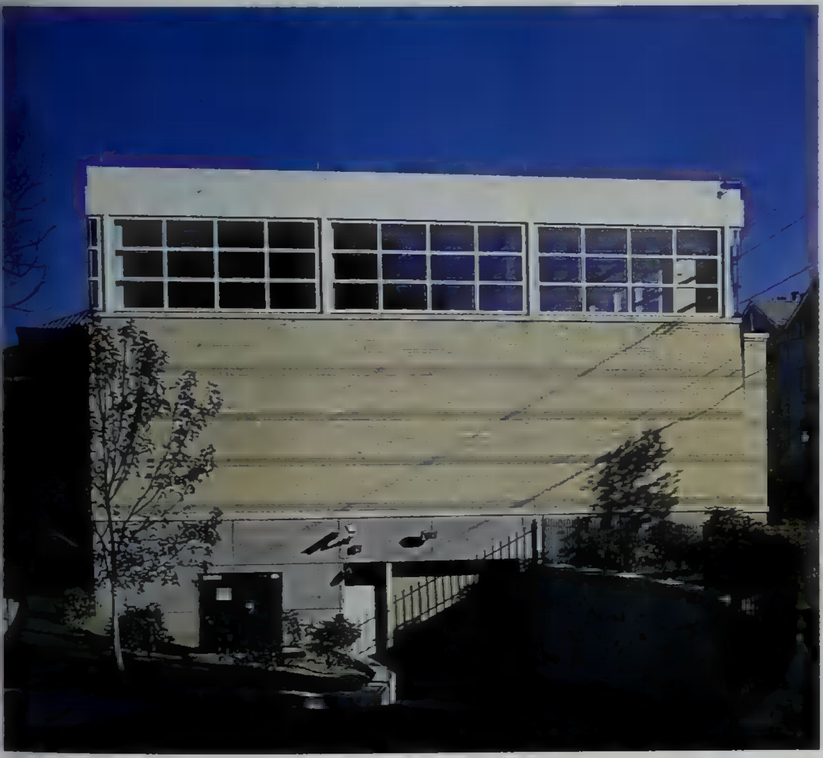

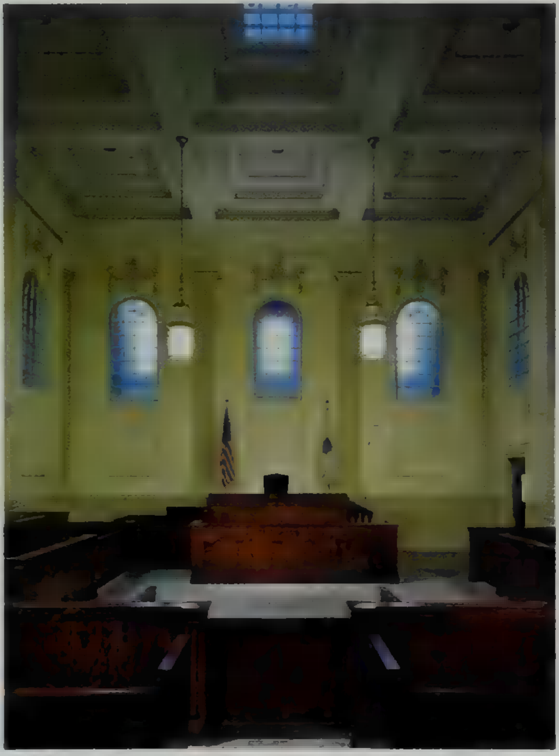

The architects added offices and judges' chambers in a rear addition reached across a three-story atrium (above right) that brings light to lower level offices—some carved out of crawl space under the original building. The atrium also clearly shows old and new by revealing an original exterior wall. The architects have carried the concept of clerestory lighting from restored courtrooms (left) to the new one (above left).

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New Courthouse

Ithaca, New York
Perkins Eastman Architects

Ithaca's new courthouse replaces a former court in an adjacent 1930s police station (right in plan), which Perkins Eastman Architects has remodeled to expand police use in the freed-up spaces. The new court also creates a civic presence by facing the downtown area to which the original building turns its back. A prefabricated-steel pedestrian bridge across a glacial creek now forms an added link to the business district, and public parkin and transportation. While secu ty normally dictates enclosed court buildings, Ithaca's is surprisingly open. An arcade at ground level is the start of a walkway along the creek, whic had long been inaccessible and neglected. The courtroom itsel has floor-to-ceiling windows th make the legal process highly visible to passersby and as plea ant as possible for the

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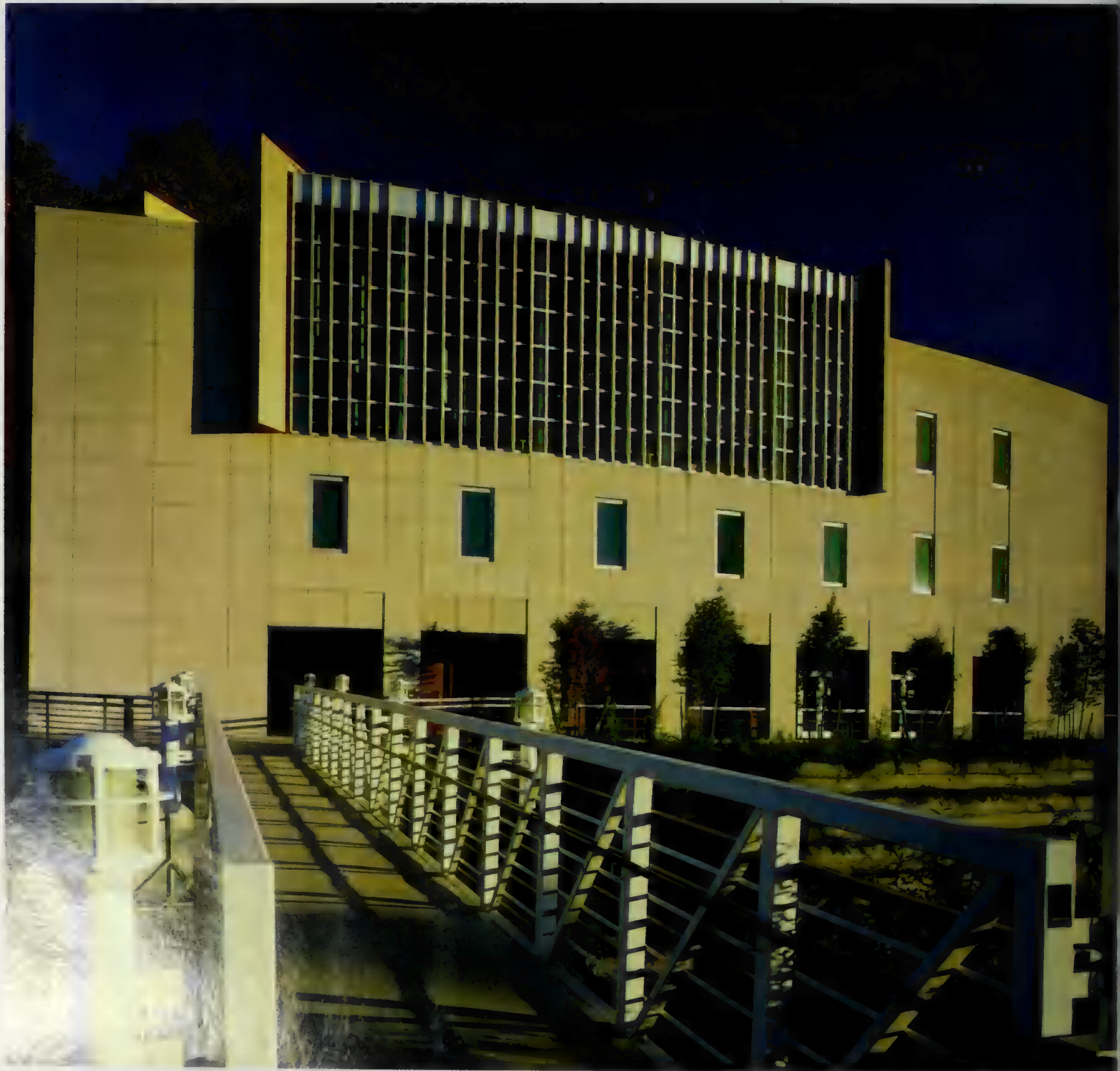
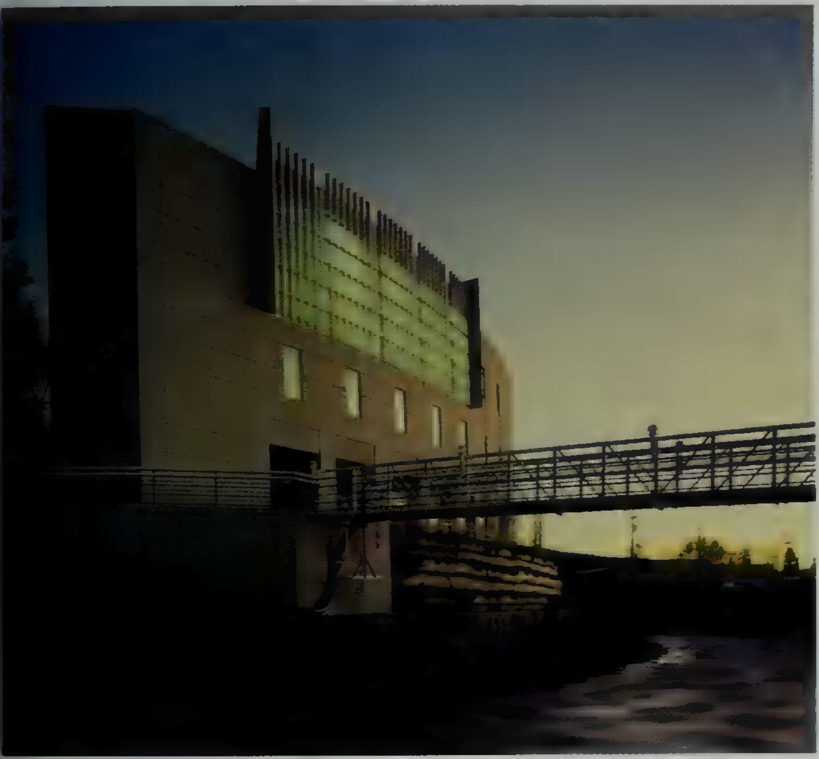


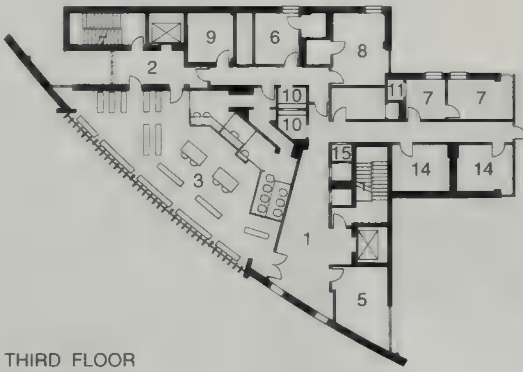
rticipants. This unusual open-ss is possible because the ·ility is intended for misde-eanor cases, which seldom ne to full trial. Arraignments e conducted in the large aring room on the second floor, ere serious cases are sent on higher courts. This room ubles as a small court for hear-gs before judges. It also houses y selection. This ad-hoc adapt-ility applies to circulation as well. Public paths are clear, but the two judges and the accused share the same route from secure parking behind a fence at grade, up an elevator to the north, and along the same hall. Or the judge may simply walk through the front door. The new $2.2-million, 12,000 square-foot courthouse has only one facade. The other two sides of the triangular building abut the original building and an embankment. The architects took advantage of firmly compacted soil behind a solid WPA retaining wall to save many tons of concrete on foundations. The structure is steel and cladding is concrete panels to match the limestone police station. *C. K. H.*

Credits

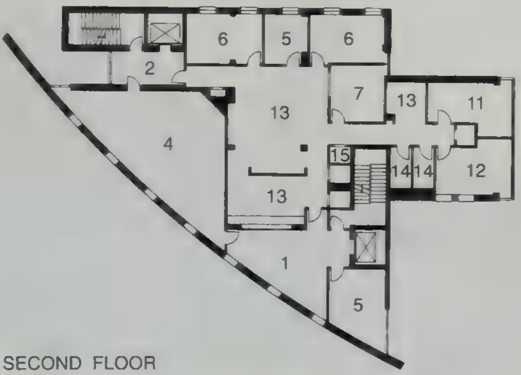
New Court and Police Facilities
Ithaca, New York
Architect: *Perkins Eastman Architects—Aaron Schwarz, Bradford Perkins, principals-in-charge; Martin Seifering, project architect; Kiyokaza Sho, Kate Hanenberg, Alexander Vajida, project team*
Construction Consultant: *Lehrer McGovern Bovis*
Engineers: *Thomas Associates (mechanical, electrical, civil); Empire Soils (geotechnical)*
General Contractor: *Streeter Associates, Inc.*



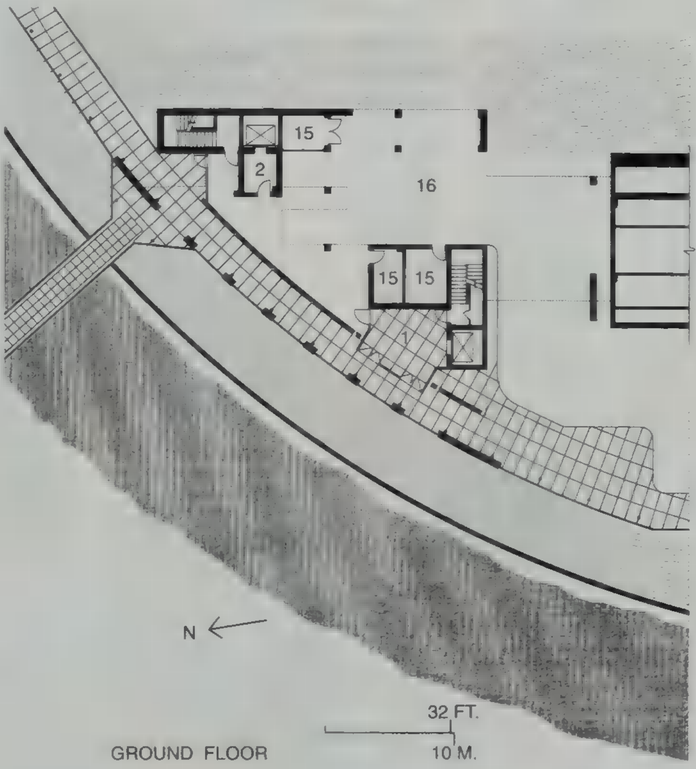
1. *Public lobby*
2. *Secure lobby*
3. *Courtroom*
4. *Hearing room*
5. *Conference room*
6. *Chambers*
7. *Office*
8. *Jury room*
9. *Detention*
10. *Interview*
11. *Storage/copy*
12. *Lunchroom*
13. *Administration*
14. *Toilets*
15. *Mechanical*
16. *Parking*



THIRD FLOOR



SECOND FLOOR



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That might have been how CUH2A architect Fred Bliefernich described the November 1993 assignment from Six Flags® Great Adventure® The project at the New Jersey theme park called for a single structure designed to look like a series of shops on a colonial "Main Street" that featured the well-known cartoon characters. The deadline was five months away. And most

SWEET'S BROUGHT THIS PAIR TOGETHER UNDER SOME PRETTY LOONEY CIRCUMSTANCES.

of the construction would take place during winter.

The Sweet's Catalog Files, with their depth and breadth of product alternatives, quickly became Fred's primary reference tool for design concepts, materials, and manufacturer contacts.

"If a manufacturer wasn't in Sweet's, it wasn't considered for this project," says Fred, an associate and senior project architect at the top-20 A/E firm headquartered in Princeton, New Jersey. "The Real Brick™ catalog in Sweet's provided enough detail for us to specify their U.S. Brick Systems,® which was ideal for cold weather installation." And a call to Sweet's Buyline® service put Fred in touch with regional sales representative [illegible] [illegible], who quickly sent samples and assured product availability.

In spite of the worst winter in years, the park opened as scheduled on April 1. And with help from Sweet's, the project that had seemed a little looney no had everyone whistling a different tune.

For Fred and other architects, the Sweet's Catalo Files and SweetSource®, complementary electronic produc information on CD, are essential. "With manufacturers binders often being two to three years old, you nee to go to the most up-to-date, comprehensive source o information," he says, "and that's Sweet's."

Read More About CUH2A's Project For Th Six Flags Great Adventure Theme Park By Calling Us A 1-800-992-0535 And Asking For Case Study Number 2

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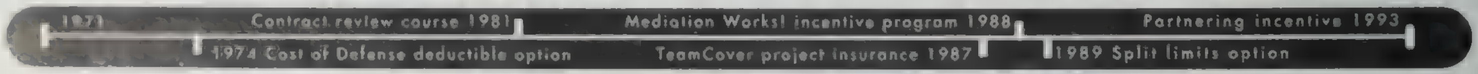
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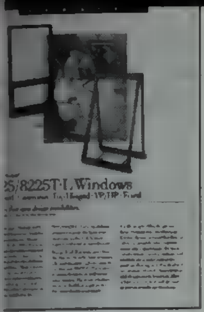

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401. Door and window CAD
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2. Stone tabletops
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403. MRI shielding systems
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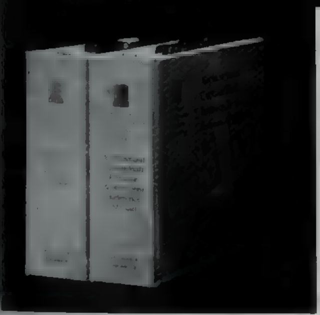
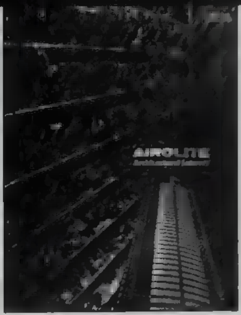


4. Curtain-wall guide
is maker's new Architectural Reference Manual incorporates all the ormation formerly found in detail d specification publications into two asy to use" volumes. Special tabs d color coding allow quick access to oduct and test data on all EFCO ndows, curtain-wall systems, storents, and entrances. 800/221-4169. CO Corp., Monett, Mo.



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partial list of sources for special glasses referenced in the Fundamentals article, page 35.

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ssaic, NJ 07055
1/471-1733

llseye Glass Co.
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rtland, OR 97202
3/232-8887

eative Central
). Box 6410
rtland, OR 97228-6410
3/639-6678

ie Gray Glass Company
9-24 Queens Blvd
maica, NY 11435
0/523-3320

lkington Sales North America Ltd.
 Gateway Blvd.
on Mills, Ont. M3C 3A1
6/421-9000

ambusch Company
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ew York, NY 10011
2/675-0400

Kiln-Formed Glass

Stephen Knapp
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508/757-2507

Dichroic Glass/ Dichroic Glass Block

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Brackenridge, PA 15014
412/224-1800

Spectrum Block Products, Inc.
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2081 Business Center Drive
Irvine, CA 92715
714/252-1978

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Pittsburgh Corning Corp.
800 Presque Isle Drive
Pittsburgh, PA 15239
800/992-5769

WeckGlass Blocks/ Glashaus, Inc.
415 West Golf Road, Suite 13
Arlington Heights, IL 60005
708/640-6910

Cast Glass

Fenton Art Glass Company
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Williamstown, WV 26187
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Blenko
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Milton, WV 25541
304/743-9801

Mr. John Lewis
10229 Pearmain Street
Oakland, CA 94603
510/635-4607

Commercial Glass Installers

Trainor Glass Company
11700 S. Cicero Ave
Alsip, IL 60658 708/388-5700

Laminated & Architectural Glass

Cesar Color Inc. (*ChromaFusion, ChromaScreen*)
880 Hinckley Road
Burlingame, CA 94010
415/259-9700

Leucos USA Inc. (*Murano Glasses*)
70 Campus Plaza II
Edison, NJ 08837

Monsanto Co. (*Opticolor*)
800 N. Lindbergh Blvd.
St. Louis, MO 63167
800/248-6844

Schott Corp. (*Opal glass*)
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Yonkers, NY 10701
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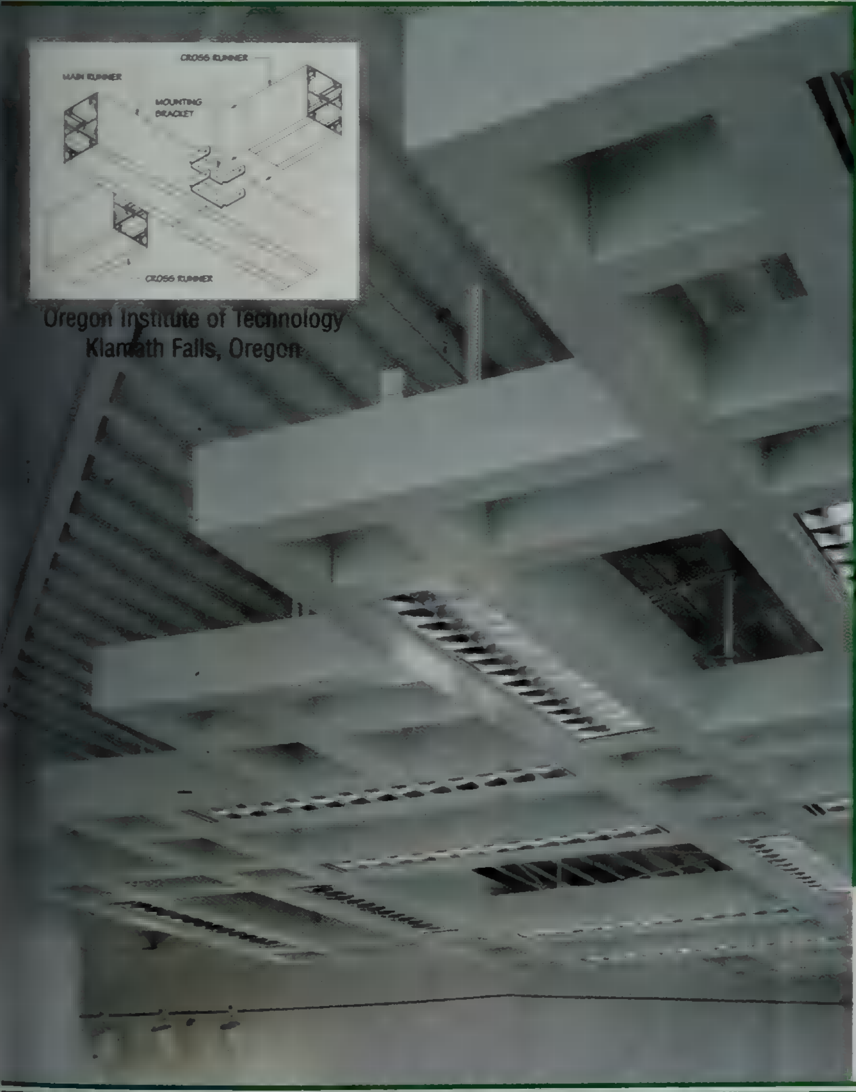

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anufacturer Sources

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erials and other products shown in this
ith's feature articles, RECORD has asked the
iitects to identify the products specified.

jes 78-83
Twombly Gallery, The Menil Collection
izo Piano Building Workshop, Architect
nard Fitzgerald & Associates, Associate
hitect
icrete block: Redondo Mfg. Pivot hinges and
ers: Rixon. Exits: Russwin. Framing of laminat-
glass skylight: Fischer. Vision and fritted glass:
ington. Motorized sunscreening: Technical
ids International, Inc. Fixed louvers and
:ing fabrication: Haley-Greer, Inc. Seamless
on-fabric ceiling: Farley Fontenot, UK Sailmak-
Natural-finish gypsum plaster: United States
isum Co. Gallery lighting: Edison Price. White-
flooring: Gilson Stanley Floors. Reception desk
oak benches: Megatrends.

jes 92-95
nen's Humane Society Animal Shelter
an Maxman Architects
rugated-steel siding and standing-seam
fing: Smith Steelite, Inc. Ground-face block:
:hor Concrete Products, Inc. Cavity-wall insula-
:: Air Krete, Inc. Extruded EPS insulation:
oco Foam Products Co. Roof insulation: NRG
riers, Inc. Windows and entrance: EFCO Corp.
mbrane roofing: Carlisle SynTec Systems.
ward-acting doors: Overhead Door Corp. Lock-
:: Best. Suspended ceilings: Mineral-base: Armstrong World Industries; metal: Alpro Acoustics. Interior glazed CMU: Burns & Russell (Spectra-Glaze II). Paints and special coatings: Sherwin-Williams Co. Reception benches: Kroin, Inc. Lighting: Litecontrol; Zumtobel: Simkar: Hubbell; Lithonia. Outdoor: Hubbell; Kim Lighting. Task fixtures: Luxo.

Pages 96-103
German Ambassador's Residence
O.M. Ungers, Architect
Lockwood Greene, Associate Architect
Oak windows and glazed doors: Philip Holzmann. Locksets: Hans Grimberg. Quartered-oak, cherry, and pearwood flooring: Kentucky Wood Floors. Tile: Vileroy+Boch. Reception furniture, portable lamps: Sawaya+Moroni. Interior fixtures: Staff Lighting. Bollards: Se'lux.

Pages 104-107
Ocean City District Court Building
Ayers/Saint/Gross Architects
Aluminum-frame curtain walls and windows: Wausau Metals. Glazing: Guardian Industries. Carpeting: Prince Street Technologies. VCT flooring: Armstrong World Industries. Office furniture: Steelcase, Inc. Reception seating: Bernhardt. Locksets: Sargent. Detention ceilings: Steel Ceilings, Inc. Cell doors: Southern Steel Co. Courtroom casework and paneling: Beitzel.

Pages 108-109
West Roxbury District Court
Elkus/Manfredi Architects, Ltd.
Curtain wall and entrances: Kawneer Co., Inc. Cladding panels: Reynolds Metal Co. Brick: Belden. All glazing: TempGlass. Windows: EFCO. Roofing: Supradur. Skylights: Fisher Skylights. Wood interior doors: Algoma. Locksets: Best. Hinges: Hager. Paints: Benjamin Moore & Co.; Sherwin Williams, Inc. Acoustic panels: Conwed. Window treatments: Springs Window Fashions (Bali). Courtroom benches: Sauder. Special fixtures (courtroom): Newstamp Lighting. Elevators: Dover. ■

Clarifications/Corrections

- The extension to the existing Hong Kong Convention & Exhibition Center [RECORD, January 1995, page 15] is a collaboration with SOM's Chicago office. Wong & Ouyang Ltd. did the conceptual study and is project architect and engineer for the design/build phases of the project.
- In the February 1995 RECORD, all color photography of the Carl and Ruth Shapiro Admissions Center at Brandeis University, pages 94-97, should have been credited to Steve Rosenthal.
- Also in February, the Design News story on the Ca' d'Zan [page 14] contained two errors: the original owners of the residence were John and Mable Ringling; the restoration, by Ann Beha Associates, is to cost $5.8 million.
- For the Drager Residence [RECORD, April 1995, page 82] Frank Israel is project designer and Annie Chu is project architect.
- In the same issue, photography of the Barry's Bay Cottage designed by Hariri & Hariri should have been credited "courtesy of *Elle Decor*". ■

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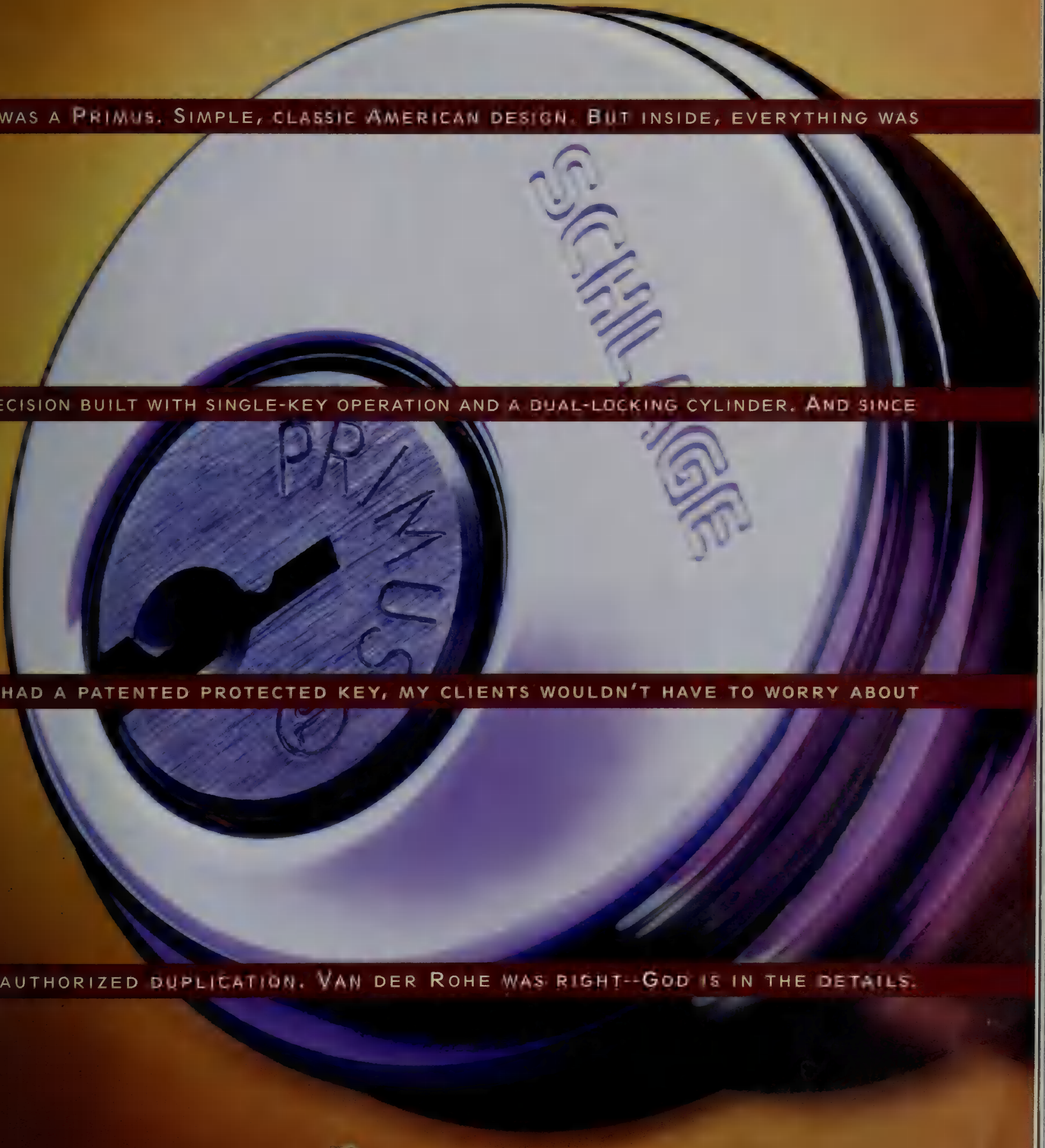

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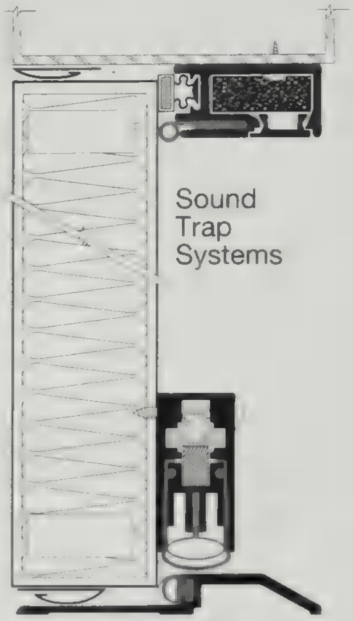

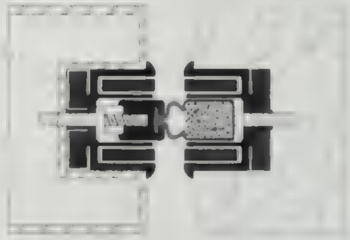
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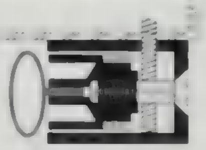
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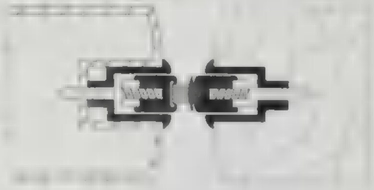
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Call Paul at Eggers (414-722-6444) for more information.

Visit Booth 2316 at CSI '95

Eggers Industries

P.O. Box 1050 • Neenah, WI 54957-1050 • (414) 722-6444 • Fax (414) 722-0357
P.O. Box 88 • Two Rivers, WI 54241-0088 • (414) 793-1351 • Fax (414) 793-2958

Access™ 5000 Raceway. For sleek and attractive [illegible] great with any decor, Wiremold® Access 5000 is the elegant solution. Its two-channel design simplifies running power and low-voltage cable. AC power wires, computer, telecommunication, security system – you name it. Modular outlets and jacks make it a snap to upgrade. It comes in a variety of finishes – from colors to wood grain. And it's UL listed and CSA approved for up to 300 volts AC. Access 5000 raceway. So stylish, it's like furniture for your wall. Call 1-800-621-0049. Wiremold. The only way to wire.

WIREMOLD

Circle 54 on inquiry card

Furniture For Your Wall.

Ultrum offers a stylish solution to a difficult dilemma; how to make a smoke-free workplace better for smokers and non-smokers alike.

So many facilities are going smoke free these days, creating a need for smoking accommodations. That's why we offer a complete line of tables, receptacles, benches and ash urns ideal for a variety of u

The durable materials deliver years of use with virtually no maintenance — and work well in an space, indoors or out. With Ultrum, you'll be rea for all the elements. Even smoke. So call for our f catalog today: 1 800 633-2394, Ext. 5262.

Circle 55 on inquiry card

Made To Withstand Wind, Rain And Heavy Smoke.

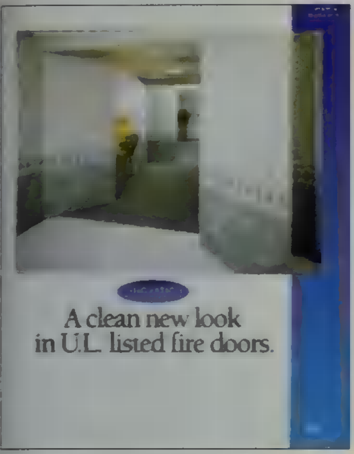
·ULTRUM·®

Ultrum by Game-Time Inc.
P.O. Box 121, Fort Payne, AL 35967

anufacturers' Spotlight

To Advertise: Call 1-800-544-7929
Fax: 212-512-2074

"Innovation" Doors



WonDoor Corporation, the world's leading manufacturer of accordion-type fire doors, introduces a new line of UL approved swing-type fire doors with recessed hardware. Called "Innovation", the new doors feature a totally clean look, completely eliminating unsightly hinge knuckles, vertical rod lines, floor bolts, and protruding fire exit hardware used on most fire doors.

WonDoor Corp.

Circle 56 on Inquiry card

OSB: Performance by Design

Get the latest word on oriented strand board, the engineered structural panel. Range of panel size and thickness means fewer design constraints and less waste. Applications include: wall sheathing, roof sheathing, subfloors, single-layer floors, and I-beams. Plus, OSB is approved by all major model building codes. Call the Structural Board Association (416) 730-9090 or fax (416) 730-9013.

Structural Board Assn.

Circle 57 on Inquiry card

Play Equipment

- SAFETY COMPLIANT
- RECYCLED MATERIALS
- HANDICAPPED ACCESSIBLE

1 800 235-2440

Gametime

Circle 58 on Inquiry card

Accessibility Solution for Straight & Curved Stairways

CARRIER-LIFT® Inclined Platform Lifts from Access Industries, Inc. carry a wheelchair or seated passenger up straight and curved stairs providing access to two or more levels. Installation requires minimal, if any, building change. The self-contained power system uses standard, 110 volt power. A power-fold platform system and up to 180° parking turns enable handy storage when not in use.

Access Industries, Inc.

Circle 59 on Inquiry card

New Fireplace Tested as a Wall Furnace

Heat-N-Glo Fireplace Products has taken its direct-vent technology and incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) and has a AFUE (Annual Fuel Utilization Efficiency) rating of 63%. Also, the 6000 Supreme is standard with a variable regulator to adjust the flame and BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

Circle 60 on Inquiry card

The Discrete Access & Egress Solution

Security requirements, space constraints and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The ladder's discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. Jomy Safety Ladder Co., 1728 18th St., Ste. 201, Boulder, CO 80302. Phone 800-255-2591.

Jomy Safety Ladder

Circle 61 on Inquiry card

Lounge Lamp

Design it your way with NIGHTINGALE® Brass 'n Color® Lounge Lamp custom options • 8 standard designer colors or 1500 custom colors • Standard bulb socket or unique energy-saving system with built-in ballast • 4 shade options, including our innovative PolyLast™ shade - looks like fine pleated linen, yet it's virtually indestructible • Exclusive industry-best 5-Year Warranty • Everything you'd want in a beautiful, Brass 'n Color accented designer lamp!

Adjustable Fixture Co.

Circle 62 on Inquiry card

AEGIS™

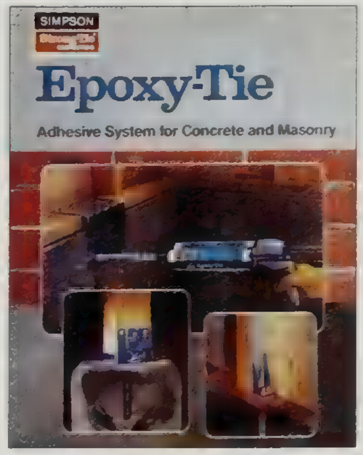
Aegis ornamental fence systems feature strong Forerunner™ rails, internal retaining rods, & specially designed panel brackets. Aegis II Industrial ornamental fence offers the strongest security ornamental fence available in todays market. Aegis holds the distinction of having its fence systems specified by more architects & builders than any other in the market. Both industrial & residential brochures are available upon request & include data on structure, design, & options available. Panel design is a component system for easy shipping. For additional information & a free 8-page brochure, call (800) 321-8724. P.O. Box 581000, Tulsa, OK 74158-1000. Fax# (918) 835-0899

AMERISTAR®

Circle 63 on Inquiry card

Manufacturers' Spotlight

Anchoring bolts easier with EPOXY-TIE ™



Low-cost epoxy system for retrofits in concrete or masonry provides stronger anchoring than can be achieved with mechanical anchors. Epoxy-Tie™ bonds with surrounding concrete; anchor is less prone to side-burst during close-interval installation. Higher resistance to moisture and vibration than mechanical anchors. Full information in brochure **F-ET**.

Simpson Strong-Tie® Co., Inc.

Circle 64 on Inquiry card

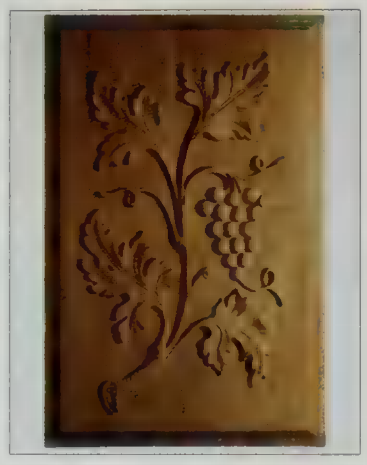
Rinnai Universal Gas Furnace

Rinnai's EnergySaver direct-vent gas-fired universal furnace combines contemporary styling with exceptional energy efficiency. Features include cool-to-the-touch cabinetry, quiet twin fans, electronic ignition, built-in thermostat and humidifier. EnergySaver models 551 and 1001 put out 22,000 and 38,000 BTU's respectively and carry a 5 year limited warranty. Rinnai America, 1662 Lukken Industrial Drive West, LaGrange, GA 30240. (800) 621-9419.

Rinnai America

Circle 65 on Inquiry card

Architectural Woodcarvings



Comprehensive selection of Architectural elements carved in solid woods. Color Product Catalog shows complete line of capitals, corbels, moldings, onlays, panels, mantel fascias and bases available in Maple and Oak. Design Portfolio illustrates applications. Catalog set-$20 (refundable with order). Visa and MC welcome. Complimentary brochures. Manufacturing and Showroom: 16506 Avalon Blvd., Carson, CA 90746. Ph. (310) 532-1400, Fax (310) 532-2042.

Raymond Enkeboll Designs

Circle 66 on Inquiry card

Accessible Lavatory Insulation

A full color catalog wi explain the different Handy Shield safety covers offere for the new or retrofi projects that need t comply with the America Disabilities Act. The specifi use, sample specifications drawings and color choic are all summarized in thi easy to understand catalog

Plumberex

Circle 67 on Inquiry card

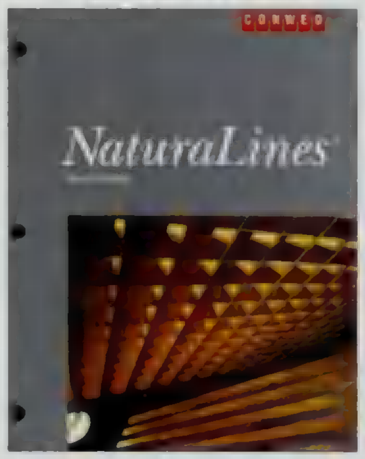
Grilles

Atlas Door Corporation, the leader in commercial and industrial doors, offers rolling [illegible] comprehensive [illegible] materials, sizes and [illegible] grilles are [illegible] housing [illegible] enh[illegible] and cos[illegible] Call (800) 9[illegible]9559.

Atlas Door Cor

Circle 68 on Inquiry card

Conwed Respond Ultimate I Panel



Conwed Respond Ultimate I is an acoustical wall and ceiling panel designed for use in areas requiring abuse resistance and acoustical absorption. It utilizes a glass fiber core faced with an acoustically transparent open perforated rigid vinyl sheet and wrapped with fabric or vinyl. Ideal for use in: gymnasiums, theatres, and multi-purpose rooms. Conwed, 1205 Worden Ave. E., Ladysmith, WI [illegible]848. 800-932-2383, Fax: 800-[illegible]-1798.

Conwed

Circle 69 [illegible] Inquiry card

Waterproofing Under Thin-set Tile

Use 40 mil COMPOSEAL GOLD 4-ply membrane to protect floors on, above or below grade from water damage. Ideal for handicap shower and dressing areas, kitchens and hospital floors; over concrete, backerboard or protected plywood substrates. Meets ANSI A118.10 standards. Available nationwide through major tile distributors. 800 221-1056.

Compotite Corp.

Circle 70 on Inquiry card

TOTAL DOOR® SYSTEMS by OPENINGS®

The TOTAL DOOR® SYSTEM i an architect-designed inte grated door assembly. I includes prefinished doo panels and all hardware. Fire rated pairs do not require coordinators, vertical rods astragals, flush bolts or floo strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. OPENINGS, 40 Wes Howard, Pontiac, MI 48342. 1 800-852-6660.

OPENINGS.

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Chadsworth Columns

Color brochures feature wood, fiberglass, polyester, E.P.S., stone and marble columns. Variety of sizes and styles. Round, square or octagonal with plain or fluted shafts. Loads-bearing for exterior or interior applications. Job site delivery. Largest selection anywhere. For catalog (800) 394-5177. Sales (404) 876-5410. Free brochures.

Chadsworth Columns

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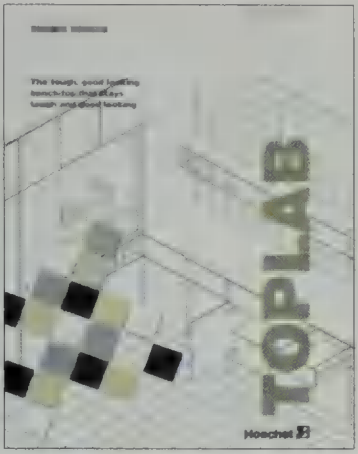
Trespa® Toplab® Lab Panel



Trespa® Toplab® grade resists strong acids, e.g. 96% Sulfuric, and other chemicals. Toplab is durable, easy-to-clean, and available in colors. It will not rot, rust, delaminate, or support bacteria. Toplab is available in sizes up to 1" thick and 12' in length; it remains flat for excellent butt joints and is 25% lighter than epoxy. 1-800-4-TRESPA.

Hoechst Celanese Corp.

Circle 73 on Inquiry card

Fence Systems

This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design and enhance the appearance and security of any property it surrounds, this fence system is virtually unclimbable, rugged, maintenance-free and easy to install. OMEGA FENCE SYSTEMS, Laval, Quebec. 1-800-836-6342.

Omega Fence Systems

Circle 74 on Inquiry card

Bicycle Lockers

CycLockers are all-steel modular bicycle storage cabinets that accommodate two bicycles per unit. Modules can be used individually or in linked groups sharing common walls. Choose from over 170 coating colors, two-toned color schemes, or stainless steel versions. For new brochure call 1-800/547-1940 ; request extension 530. Columbia Cascade Co. Portland, Oregon.

Columbia Cascade

Circle 75 on Inquiry card

SENERGY CAD-NET SOFTWARE

Architects can cut hours to minutes when designing exterior walls with Senergy's CAD-NET, a new AutoCAD - compatible (V.11 and higher) specification & detail drawing program for Exterior insulation & Finish Systems (EIFS). The CAD-NET program provides specifications & details for Senergy's Senerflex, Senerthik & QRsystem. CAD-NET is available on either 3-1/2" or 5-1/4" diskettes. **For more information: Senergy 1-800-221-WALL. Leaders in EIFS.**

Senergy

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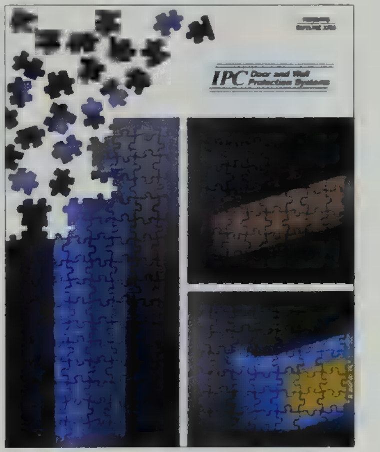
Concrete Waterproofing by Crystallization

Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures.

Xypex Chemical Co.

Circle 77 on Inquiry card

Door and Wall Protection Systems

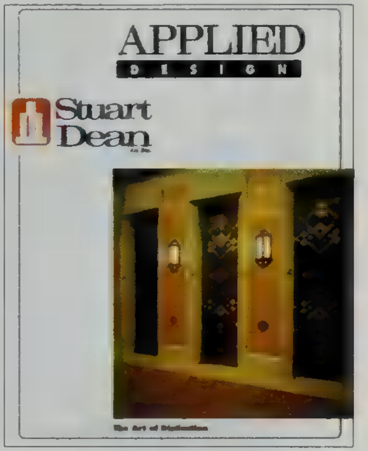


IPC - Institutional Products Corporation is a manufacturer of high impact door, corner and wall protection systems. Our catalog illustrates a product line that includes Handrails, Corner Guards, Wall Guards, Kickplates and Wallcovering. Our durable vinyl products, offered in 50 designer colors, provide an attractive way to protect interior finishes from damage.

Institutional Prods. Corp.

Circle 78 on Inquiry card

Applied Design by Stuart Dean



When a new architectural design technique is impressive enough to be used by firms like Pei, Cobb, Freed & Partners and Frank Williams and Associates, at only half the price of etching, it catches everyone's attention. Stuart-Dean's Applied Design is a versatile method for decorating and refinishing elevator doors, metal, wood or glass. It can often be applied on site, overnight. You can choose stock patterns or custom artwork. 1-800-322-3180.

Stuart Dean

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Manufacturers' Spotlight

Natural Design Collection

When selecting natural building materials for the home or commercial building, choose carpets woven with nature's resilient fibers. Sisal, coir, reed, jute, and wool are woven on power looms into traditional textures and patterns. With the proper care, these floor coverings will retain for years the characteristics of their natural origins. Design Materials, Inc., 241 S. 55th St., Kansas City, KS 66106, 800-654-6451

Design Materials, Inc.

Circle 80 on Inquiry card

Stone Panels

Ultra-Lite natural granites, marbles, limestones & slates. Offering natural stones with 80% less weight. Reinforced for high impact & flexural strength. Especially well suited for renovation & reclad. Saves on back-up framing & structure requirements. Reduce installing labor costs. Used on building exteriors throughout the world. Also elevator cab & lobby cladding, ceilings & locations requiring real stone but less weight.

Stone Panels, Inc.

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Duraflake FR Fire-rated Particleboard

Duraflake FR provides Class A fire protection in wall systems, store fixtures, furniture and case goods. It has a UL flame spread rating of 20 and a smoke developed rating of 25. Its smoothness, machinability and uniformity make it an ideal substrate. It even resists warping and won't leach chemicals. Call (503) 928-3341.

Duraflake

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REASONS Stacking Syste
for Improved Office Space

REASONS from Transwall Cor
a manufacturer of movab
office partitions & systems fur
ture, is a new stacking syste
designed to provide improve
office space facilities wi
maximum flexibility & a minimu
of parts inventory. It offers qui
off-module changes for wo
surfaces & overhead storag
which can easily be rearrange
on horizontal rails without stru
tural panel changes. Total wi
management is provided in th
4" thick panels, as well as
unlimited choice of aesthet
color selections.

Transwall Corp.

Circle 83 on Inquiry card

REYNOBOND Project Report

Fire resistant REYNOBOND® Aluminum Composite Material is featured in a project report of the State Compensation Insurance Fund office building in Fresno, CA. Containing details and comments by the design and contracting principals, the report is available with a complete REYNOBOND® Architecture Brochure and standard detail manual. Contact Reynolds Metals Co., Construction Products Div., P.O. Box 27003, Richmond, VA [illegible]. Telephone [illegible]. (804) 281-3[illegible].

Reynolds Metals Co.

Circle 84 on Inquiry card

New Look Granites

GRANICOR now offers a new generation of granites with movement (veined or swirled look) in addition to the traditional offering of monolithic granites. Also new from GRANICOR are finishes which enhance the color richness of dark-color granites after flaming or honing. For technical assistance, samples or budget pricing, call 904-326-8139.

GRANICOR

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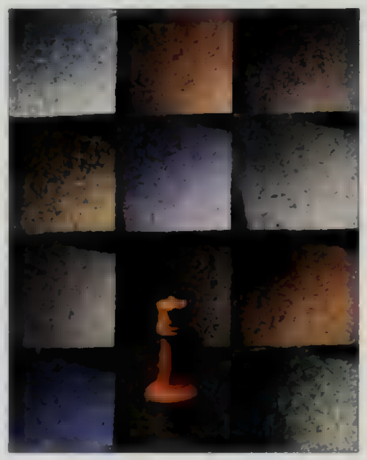
Multicolor Wall Finishes



Polomyx multicolor wall finishes provide a diverse alternative for an array of interiors. Conventional to waterbased formulations are available, with more than 30,000 existing color options, plus custom color matching. From soft pearls to bright blends, Polomyx multicolors each contain millions of multicolored particles, all featuring ContinuousColor™ quality, and maximum durability. Polomyx: With diversity comes distinction. A product of Surface Protection Industries International. Call 800-426-5577.

POLOMYX®

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Unique System for Retrofit Solutions

Informative color brochure illu
trates the many configuratio
and options available wi
Custom Curb Adapta-Cu
System that allows equipme
changes without disturbing th
roof. The unique system
designed for retrofit as well
new construction to add
replace HVAC units, vent
plumbing stacks, skylights an
other rooftop equipmen
Exclusive sloped design for pos
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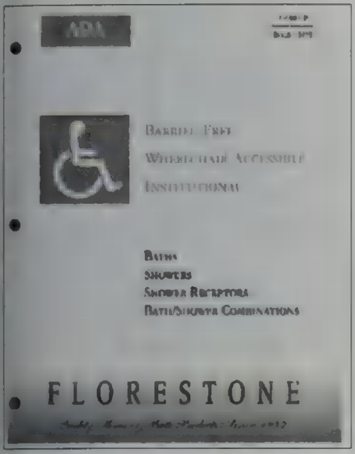
load distribution.
1-800-251-3001.

Custom Curb, Inc.

Circle 87 on Inquiry card

Barrier-Free Products Catalog



New Florestone brochure describes ADA compliant, barrier-free, wheelchair accessible and institutional showers, shower/bath combinations, and shower receptors. Drawings and listing of Building Codes and Testing Standards, as well as a section on the codes is included. Call (800) 446-8827.

Florestone

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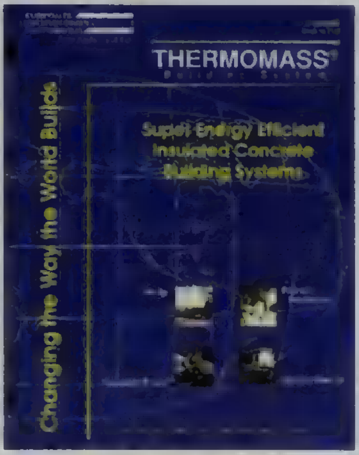
THERMOMASS® Building System for Superior Correctional Facilities


THERMOMASS®
Super Energy Efficient Insulated Concrete Building Systems
Changing the Way the World Builds

This system is a time-proven, super-effective method of insulated concrete construction that lends itself ideally to the stringent requirements of correctional facility construction. Fireproof. Energy efficient. Structurally superior. Ideal for "fast-track" schedules. Contact: Composite Technologies Corp., P.O. Box 1888, Ames, IA 50010. Call: (515) 232-1748. Fax: (515) 232-0800.

Composite Technologies

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The Soffi-Steel™ System

So rugged and tamper resistant that it is being specified for correctional facilities, the Soffi-Steel modular soffit system is simple to install and offers a streamlined appearance unobtainable with some other systems. The Soffi-Steel system can accept recessed or concealed sprinklers as well as institutional sprinklers. Available in various colors or in stainless steel.
For more information contact:

GRICE ENGINEERING, Inc.
23 N. Main St., P.O. Box 8037,
Janesville, WI 53547-8037.
Toll Free (800) 800-3213
Fax (608) 757-1452.

Grice Engineering, Inc.

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Infectious-Disease Isolation Room

The **MARK IDU SERIES 2000** is state of the art in self-contained infectious Disease Isolation Units. These modular Negative/Positive Pressure Units serve as a multipurpose infection control environment, that is computer controlled and monitored with a programmable touch screed command microprocessor. The air conditioning, heating and ventilating system, complete with ductwork, is also computer controlled. 1-800-835-6275.

Mark Care Medical Systems

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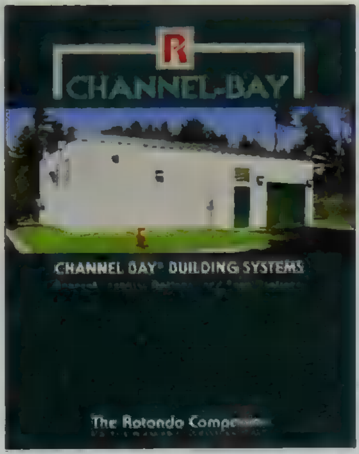
Sheet Metal Decoration

INTRODUCING THE NEW ALPHA COLLECTION FOR 1995. With 24 standard patterns to choose from, ranging from the most basic vandal resistant **TEXTURES**, to innovative **STANDARDS** and our new **ULTRA** Series (photo). **Patterns** come in standard sheet sizes with border-to-border decorations, using distinctive finishes in stainless steel or copper alloys for elevator surfaces, wall panels, column covers, trim, etc. **Prices** start at less than $10 per sq. ft. for Textures, the average price for stainless steel Standards is $12 to $15 per sq. ft. **Information**: call 800-537-1127 or fax 305-696-1127. PATTERN I N PHOTO (BMG-003-1) ULTRA Series.

SURFACE DESIGN + Technology

Circle 92 on Inquiry card

Channel-Bay ®

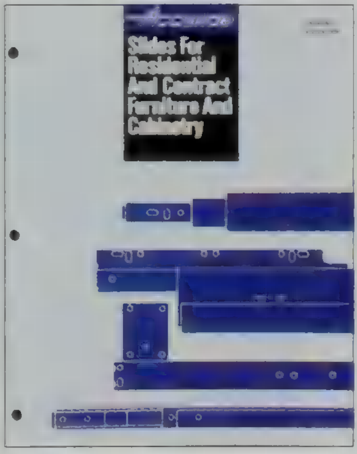


Rotondo, the world's leading manufacturer of modular precast building components, introduces a new mix of engineering concepts with Channel-Bay® building segments. These segments and closure panels use precasting, pre-stressing, and post-tensioning techniques to provide up to 60' clear span buildings of ... any length!

The Rotondo Companies

Circle 93 on Inquiry card

Enhance the Quality of Casework

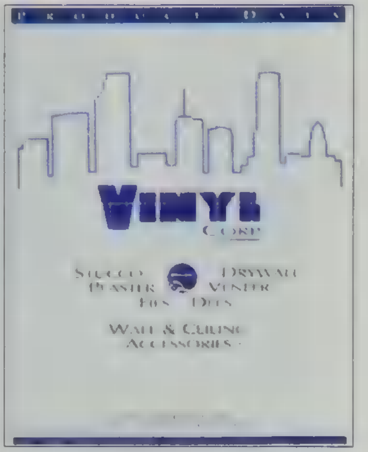


Accuride offers a variety of superior slides - perfect for residential, kitchen and office drawers. Accuride slides glide with a fluid motion so silent, they redefine the concept of drawer suspensions. Accuride's catalog - "Slides for Residential & Contract Furniture & Cabinetry" features our new heavy-duty, incredibly stable TV Swivel. For more information: (310) 903-0200.

Accuride

Circle 94 on Inquiry card

New Product Catalog



Vinyl Corp. manufactures the most extensive line of over 500 quality wall and ceiling accessories for stucco, plaster, EIFS, DEFS, veneer and drywall. All accessories are exclusively manufactured with Geon® Virgin Vinyl compounds. For more information call (800) 648-4695, and ask for Vinyl Corp's new 44 page product catalog. VINYL Corp., 8255 NW 70th Street, Miami, FL 33166

Vinyl Corp.

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ColorBlends™ The Pre-Packaged Blended Roof

Five popular blends of Supra-Slate® are pre-packaged in each bundle for ease of installation. Featuring Supradur®'s exclusive Direct From THe Quarry finish, these fiber-cement shingles are maintenance-free, non-combustible and will withstand freeze/thaw conditions throughout North America. Free literature and samples. Call (800) 223-1948 or fax (914) 967-8344.

Supradur Manufacturing Corp.

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"We Stack Up"

Rotondo goes anywhere in this great land to provide Modular Components for the Corrections industry that are unmatched for Quality, Savings and Versatility of Service. Rotondo has proven to be successful on projects. Call 800 523 273 for more information ranging from 50 bed County Jails to 1,000 bed State Prisons.

The Rotondo Companies

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Design Guide for Correctional Facilities

Dex-O-Tex sanitary polymer flooring and wall systems from Crossfield Products are designed to meet the demanding conditions found in correctional facilities. Flooring solutions for use in cell blocks, rehabilitation shops, dormitories, kitchens, laundries and recreation areas are outlined in this handy Design Guide. Dex-O-Tex Division, Crossfield Products, Corp., (310) 886-9100 or (908) 245-2800.

Dex-O-Tex Corp, Crossfield Products

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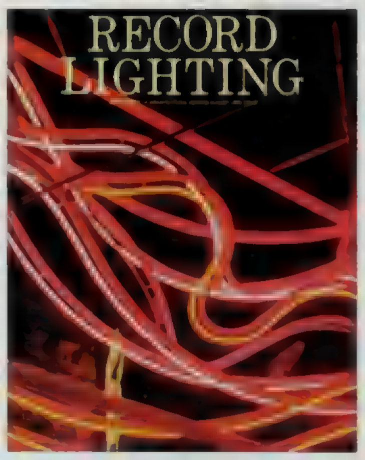
Back Issues of Record Lighting



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Record Lighting

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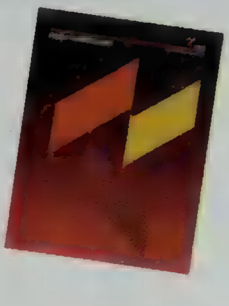

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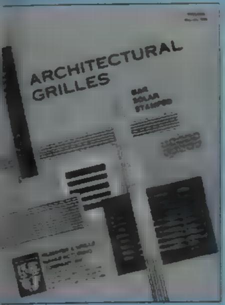

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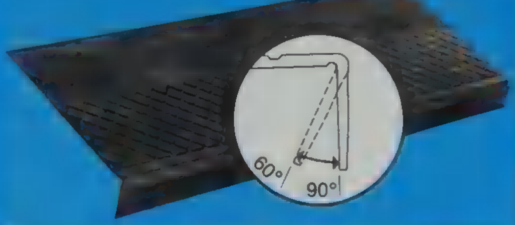

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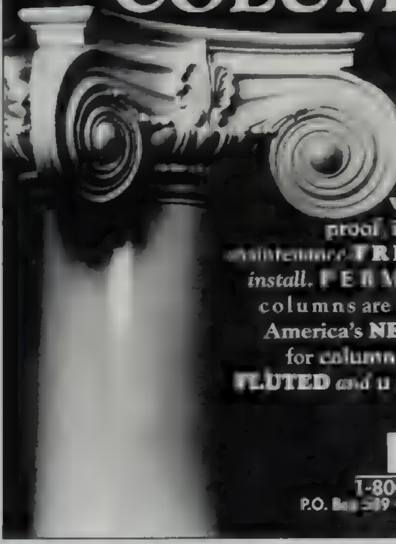

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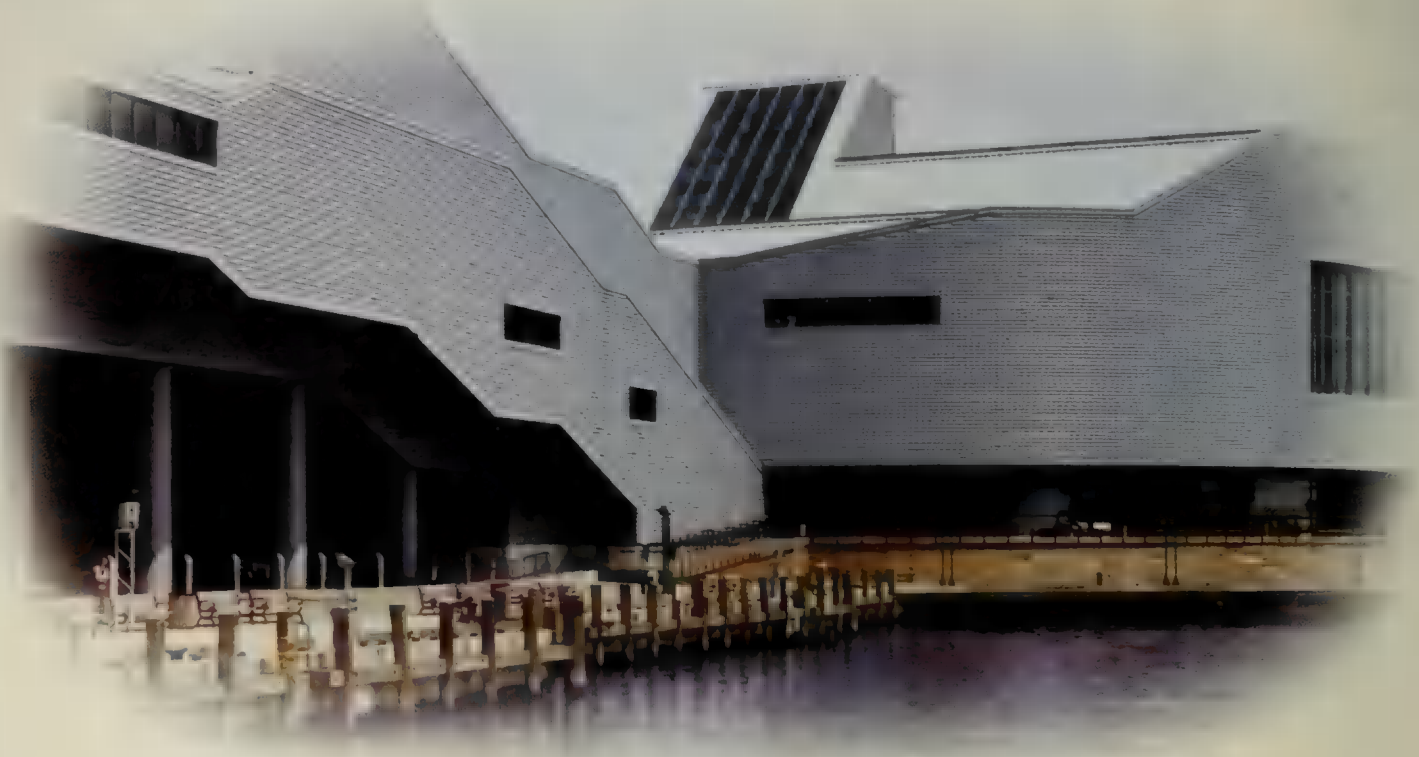

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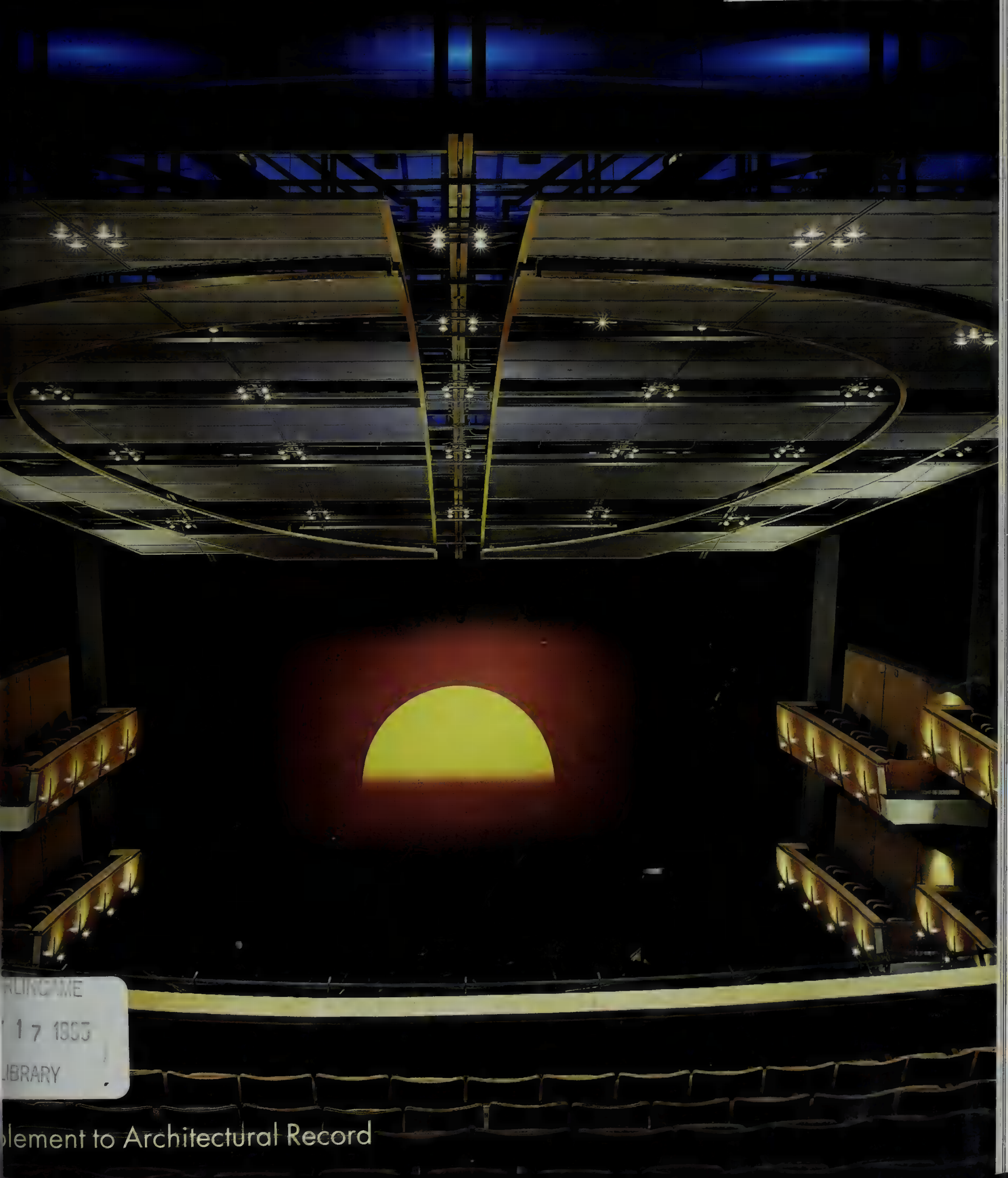

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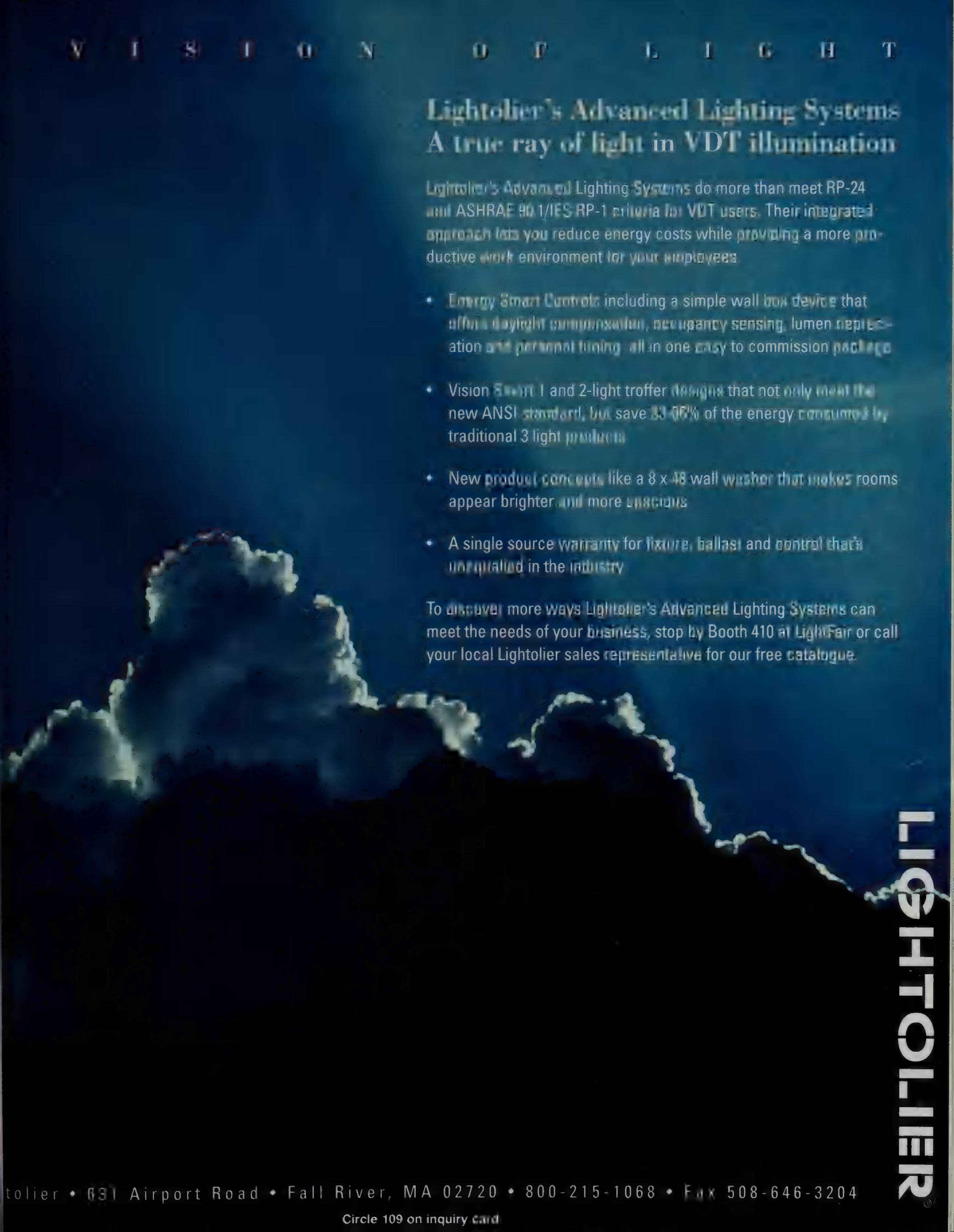

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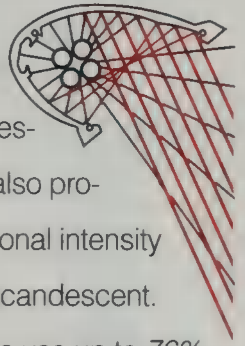

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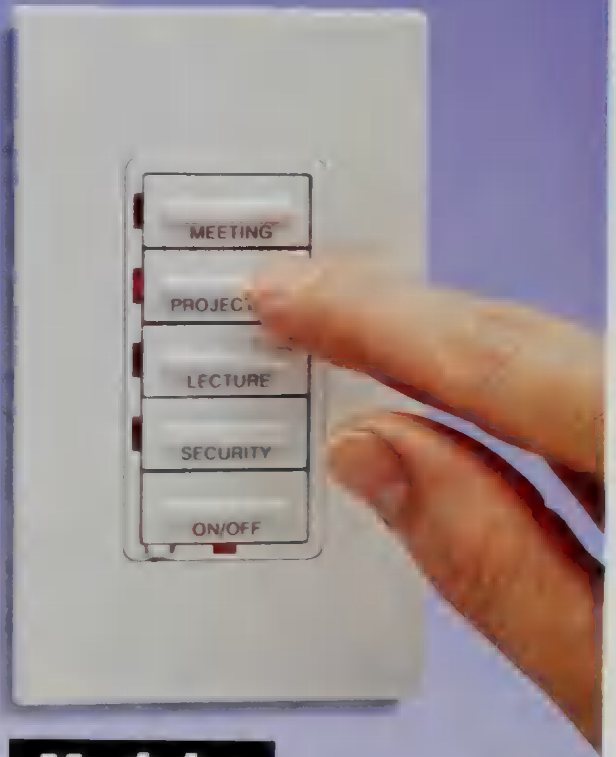

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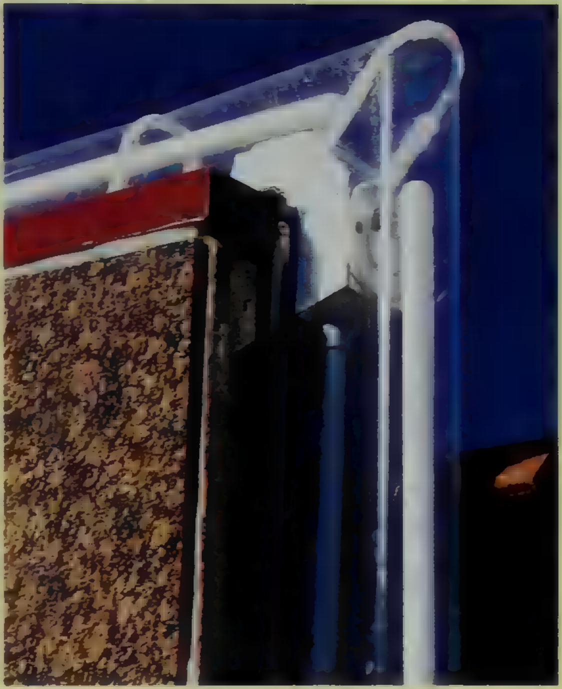
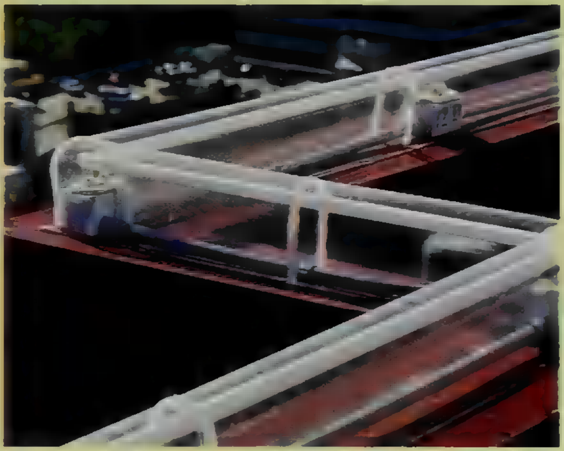
rtland, Oregon

ortland Skyline Lovers See Green

make the new Bank of America Financial
nter a night time standout on the Portland
line, lighting designer Robert Dupuy, of
erface Engineering, traced the peaked
f of the new building with a thin green line
old cathode. To protect the lamps and



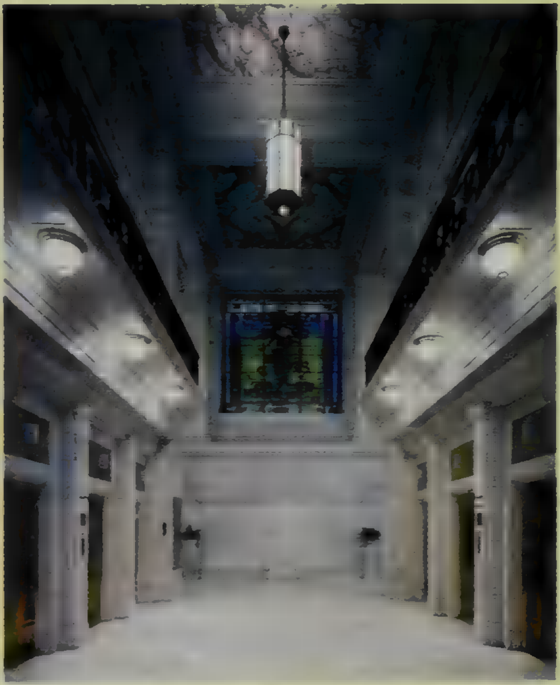


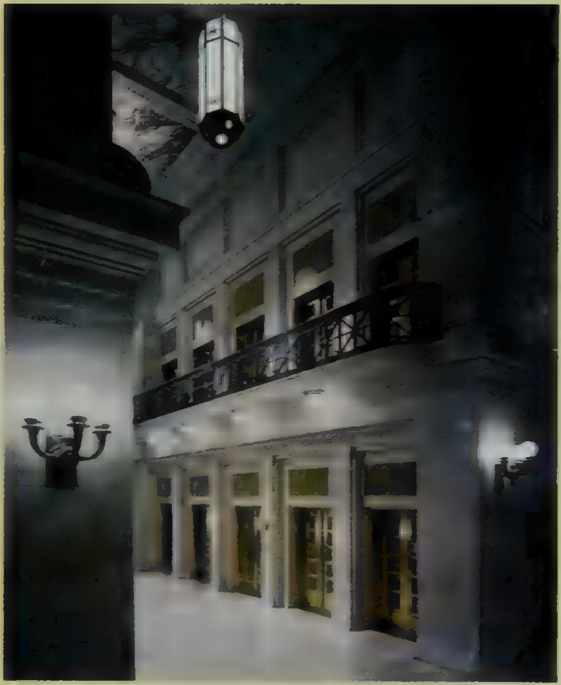
hardware, he designed a custom plastic cover and reflector. The assembly was granted a UL listing from Underwriters Laboratory in the field, a rare event. Folks found the lighting controversial at first, but now, like other things green, it's growing on them. ■

ttsburgh

Facelift for Mr. Frick

Pittsburgh, Burt Hill Kosar Rittelmann
sociates and Horton•Lees Lighting
sign have restored the Henry Clay Frick
ilding's shimmering glamour. Built in 1907,
lights gave way to a plethora of lighting
ures over the years, including magnificent
ndant fixtures, sconces, and ceiling fix-
es. Now rebuilt, the pendants' vertical
nels are lit by 3000K T8 lamps, and high-
t the coffered ceiling above with MR16s.
AR70 spot concealed in the bottom of one
pendants lights a bust of Mr. Frick, while
er pendants flood the floor with Q250W
R38s. Sconces were repaired and fitted
h compact fluorescents, while the new
erical ceiling fixtures, also compact fluo-
cent, were custom-designed. The stained-
ss window was backlit using 3000K slim-
fluorescents. "Now the benevolent Mr.
ck really glows," says Jules Horton. ■



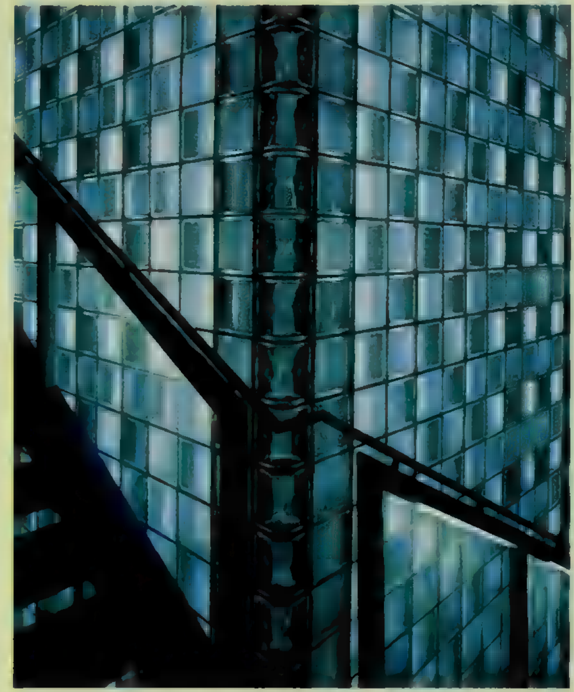


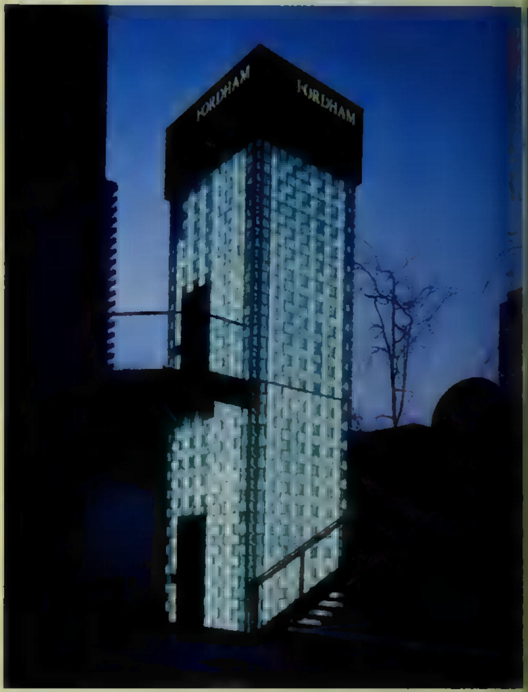
© Scott McDonald, Hedrich Blessing photos

New York City

Fordham's New Tower of Light

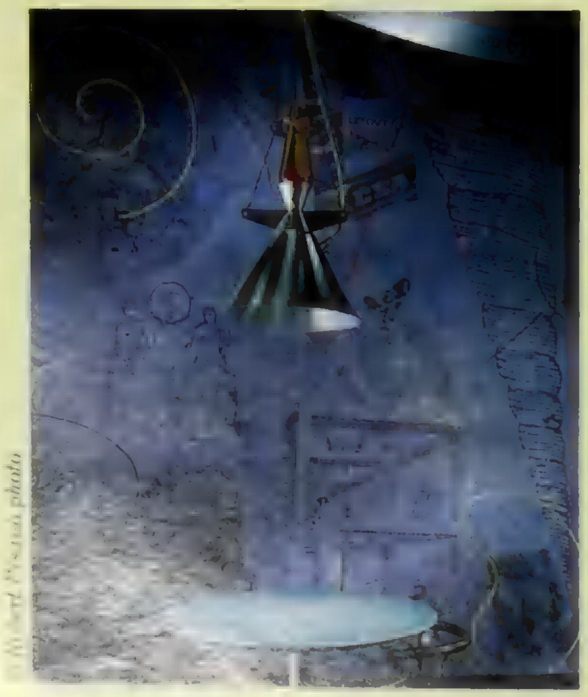
A glowing stair-and-elevator tower now links Fordham University's rooftop sculpture garden to the street below. The designers, John Gillis Associates, used 4-in.-thick glass block for the 20-ft-tower's facade, which is backlit by white neon bars spaced about a foot apart. A cantilevered stair wraps gently around the tower, while its steel structure is carefully hidden to emphasize the tower's lightness and leave the view of the glass-block column unobstructed. At night, the glow of the stair tower gives off an eerie light and also offers safe access to the garden. The vast, two-block-long garden sits atop the school's library and auditorium. Until now, it could only be accessed through the building below. ■





Seattle

Lava Lamps Hit the Spot



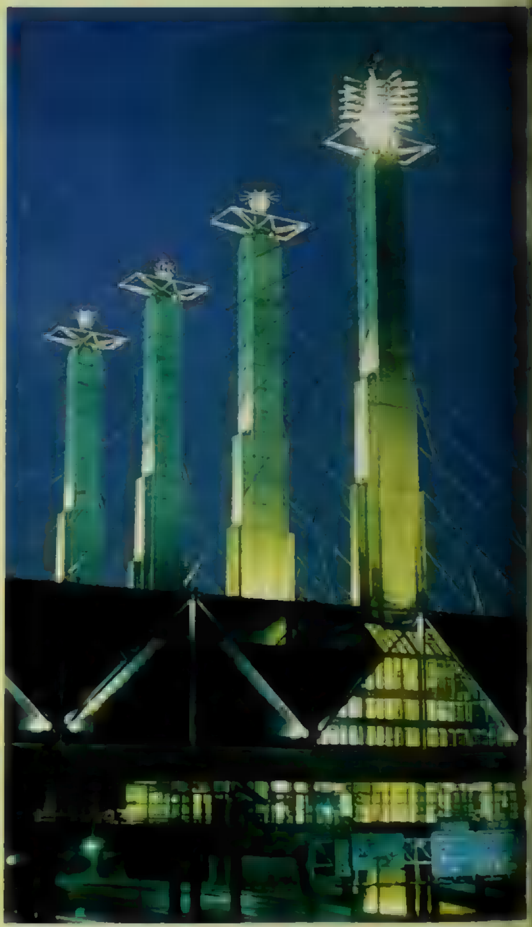
[illegible] photo

[illegible] took a collection of [illegible] into cen- [illegible] restaurant. The [illegible] the tables [illegible] shields [illegible] ■

Kansas City, Missouri

Bartle's Bangles and Beads

Kansas City's $100-million Bartle Hall, designed by HNTB Architects Engineers, has been crowned with four beaming, surreal, giant lanterns. Designed by the artist R.M. Fischer, the ornaments sit atop four 200-ft-tall concrete pylons, which support the cables suspending the convention center's roof. The monumental "Sky Station" sculptures have a futuristic wackiness. One was described by a local reporter as "a great big hair roller." But according to HNTB's Richard Farnan, Kansas Citians are particularly conservative about building the unusual, especially after a couple of serious construction failures there. To ensure the structures would not topple in a strong wind, during installation or afterward, no field welding was allowed. Welding had to take place in a plant, but it was hard to find a plant big enough. The next challenge was finding a helicopter that could carry both the weight of the sculptures and the necessary fuel. Now that they're complete, people are more at ease about about the structures. Locals hope the towers will do for their city what the Gateway Arch did for St. Louis and, in fact, the results can be seen clear to the Gateway City. ■



sign

riefs

inges

:istina Selles has been made partner at lighting design firm Wheel Gersztoff edman Shankar, Inc. The firm's new name Vheel Gersztoff Shankar Selles, Inc.

orton • Lees Lighting Design has named ee new associates: Mark W. Harris, Ann Schiffers, and Alex Pappas Friend. Gary don has been appointed vice president.

n Benya, a regular contributor to the ting design and technology columns nd in these pages, has relocated his firm, nes R. Benya Lighting Design, from salito, Calif., to West Linn, Ore. Benya maintain an office in Sausalito to serve clients in the Bay Area.

oss De Alessi has relocated his firm, Ross Alessi Lighting Design, away from the (!), from Portola Valley, Calif., to Seattle.

eting Place

ghtFair International will be held June 7- McCormick Place in Chicago. Call /856-0327 to join the mailing list. ■

kyo

he Real Energy- fficient Thing

ew Coca-Cola sign towers over the Ginza pping district—Tokyo's version of Times uare. The circular sign, nearly 50-ft tall, s more than two miles of neon tubing. ording to Coca-Cola, it also uses one-third s electricity than conventional signs. ■

London

New Induction Lamps Stand Test of Time Lighting Big Ben Clock Faces

Since 1859, a light has shone from the top of London's Big Ben—the House of Parliament's clock tower—whenever a session drags on into the night. Now the tower's four clock faces also shine brightly. Philips Lighting was asked to replace the old cold-cathode lamps with something more energy-efficient and maintenance-free. One-hundred-twelve new induction lamps have made the clock faces three times brighter and—perhaps more important to the clockmaster—they will not have to be changed for 15 years. ■

Massachusetts

Education the Focus of New Lighting Lab

Osram Sylvania has opened a laboratory for lighting at its main headquarters in Danvers, Mass. The multimedia center—called LightPoint, the Institute for Lighting Technology—is an education facility that will offer regular seminars and exhibits on lighting design to customers, architects, engineers, interior designers, and contractors. Three, two-and-a-half-day foundation courses will focus on lamp technology, the "art and science" of lighting design, and up-to-date, energy-efficient lighting technology. For those engaged in the world of entertainment, the 6,400-sq-ft center will also be a place to explore television and theatrical lighting. For information on attending workshops and seminars, contact the LightPoint Manager, Osram Sylvania, 100 Endicott Street, Danvers, Mass. 01923, or phone, 508/750-2225. ■

Light and the Human Animal

By James R. Benya

Those who design lighting generally strive to achieve basic principles of good design, such as proper task levels, attractive appearance, energy efficiency, and the like. In addition, the lighting designer should understand the human-vision system and should factor in this understanding during design. Today, most of the emphasis is on minimizing disabling and uncomfortable glare.

But throughout the modern period of electric lighting, little design consideration has been given to the "non-visual" aspects of light. Most design professionals would probably agree that light is vital to human health, just as is a well-balanced diet. As professionals, we probably don't do enough to design lighting to take into account these non-visual effects, which include some fairly well understood principles of human health, sense of well-being, and emotional response to the environment.

Light and the body clock

Thirty years ago *Health and Light* was written by John Ott, a photographer, who observed health changes in himself and, later, changes in laboratory animals when exposed to different kinds of light. A number of Ott's scientific methods and conclusions were flawed, but millions of Americans read the book and its successor, *Health, Radiation, and You*. His claims about light and health inspired the development of "healthy" lighting products, and instigated recognized scientific research into the field.

The products aimed at the light and health market based on Ott's "full-spectrum" lighting theories emphasized the use of halophosphor lamps of 5,500K and 90+ CRI, some even designed to emit an extra amount of long-wavelength UV. Health and light [illegible] still promote and sell full-spectrum [illegible] equipment, but the FDA's 1985 [illegible] at the largest makers of these [illegible] from making health [illegible] fortunately curtailed most of [illegible] and the confusion it [illegible]

[illegible]

On the other hand, the recognized scientific research inspired by the early full-spectrum advocates has contributed to the understanding of how the human endocrine system, triggered by light entering the eye, regulates body chemistry, and in particular, the secretion or suppression of melatonin. Melatonin levels in the body determine a person's activity and "energy" level. High melatonin levels cause drowsiness, while low melatonin levels correspond to an alert state of consciousness. Relatively high illuminations (250 fc or more) entering the eye can suppress melatonin levels.

It became quite apparent that light therapy could be used to treat seasonal affective disorder (SAD), the so-called winter depression associated with the short daylight hours during winter in the extreme north and south latitudes by introducing light of greater intensity and duration than is provided by the sun in these locales. Assuming most people won't want to wear self-contained "light hats" around the office, there could be many architectural applications of light therapy. Creating light therapy in 24-hour operations, for instance, is a terrific idea. San Diego Gas and Electric is presently testing an installation of this type for nuclear power-plant control-room operators.

Another good idea is perhaps introducing similar light-therapy systems into exercise rooms, break rooms, breakfast rooms, and similar spaces, especially in the colder climates. Studies in architectural applications are presently being conducted to determine just how well they work.

There may also be a very important architectural lesson here. People seem to need exposure to the outside, sunshine especially, and architects have generally treated fenestration as a device for fulfilling this need. Perhaps now we understand why.

But the real lesson here may be what many people have suspected all along: that designers need to introduce more daylight into building interiors. The needed suppression of melatonin may very well occur with a glance out the window. No wonder people who work in spaces with windows appear to be happier and more productive than those who do not.

Light and cancer

About three years ago researchers in Geno Italy, wrote the editor of *Science* magazine, claiming that they had determined that hig levels of unshielded halogen light caused cancer in laboratory rats. The press picked the item and it was republished worldwide. Lighting designers' phones rang off their hooks from terrified clients.

In fact, these scientists had rediscovered the fact that exposure to UV radiation caus cancer. The laboratory rats were exposed t high levels of light from tungsten halogen lamps without the generally required prote tive glass. Because high light levels were used, yes, the rats developed skin cancer from the UV inherent in halogen lamp radi tion. But even though the letter did report that rats exposed to lamps with glass cover over them did not develop cancer, they faile to report that it was UV light that caused t cancer, or that most halogen lamps in the U.S. are required to have UV-absorbing gl covers.

There have been further studies throughou the world attempting to link electric lightin with cancer. We know for sure that UV ligh causes skin cancer, and can damage the eye But there is little evidence of any other rela tionship. In fact, the low-frequency electromagnetic radiation (EMF) emitted from lights is much less than that caused by mos electrical appliances.

Light and low-frequency modulation

Anyone who has experienced a strobe light knows of the potential for disorientation, nausea, and other side effects. Generally the frequency of dance-floor strobes is very low, on the order of 5 to 20 cycles per secon (hertz). But it would be reasonable to suppo that some physiological effect might occur at higher frequencies, in the 100 to 120 hert range where fluorescent and HID lighting equipped with magnetic ballasts operates. The lack of research prevents conclusions from being drawn. One fairly good experiment from England determined that fluorescent office-lighting systems operatin on standard magnetic ballasts might contribute to "office headaches." The physio-

signing lighting means more that crunching numbers; it means
derstanding how human psychology and physiology react to light.
ghting designer Jim Benya reviews some of the basics.

cal effects of lighting may very well turn
to be of great concern. Fortunately, light-
designers can now use high-frequency
tronic ballasts for fluorescent and some
) loads, which will make flicker a very
or issue in the future. As a side benefit,
potential for conflict between flickering
ts, computer screens, and vision will be
inated.

ht and the psyche

late Professor John Flynn's pioneering
k attempted to understand the human
ponse to light and lighted spaces. Flynn
d classic psychological testing methods to
relate the reactions of test subjects to
ting applications in test rooms. These
e among his most widely studied works.
se continuing this research understand
profound significance.

architect's vision, understanding, and
ition has been applied to predicting
ple's reaction to the built environment
centuries. People can often be heard
g emotive terms to describe space that
consistent with those Flynn tried to
ate through lighting. Lighting designers
itively use Flynn's principles in their
k. For instance, lighting upper walls and
ngs create airy, friendly, spacious rooms;
k upper walls and ceilings make rooms
n smaller and less comfortable.

of the most often requested lighting
gn effects is "drama," an intangible
sation one experiences upon entering a
n. Drama is, in fact, easily created using
n-contrast lighting effects. What differen-
es dramatically lighted spaces from the
inary is the emotional response. Flynn's
n was that drama is a measurable human
ponse to an environment.

etter way to understand drama, and for
matter, a number of human reactions
ghting, might be to consider instinct.
nan beings probably possess instinctive
avior that lingers on in the brain through
ions of years of evolution. We are sort
ke bears with brains—although we sup-
edly think about our actions, there are a
of things we just do. This could perhaps
lain a lot of our reactions to light in envi-
ments. For example:

- The lighting we have described as "dramatic" is high-contrast, and its visible bright sources cause vision to be lost in dark corners, and trigger a frightened reaction.
- The security of light gives humans a better chance to defend themselves against nocturnal predators, hence the preference for a night light or fireplace.
- A full moon illuminates the night landscape, which makes hiding from predators under the cover of darkness impossible, hence people don't sleep well during a full moon.

Light and romance

The expression "candlelight dinner" conjures up images of warmth and comfortable drama the world over and, indeed, clients often ask for lighting that recreates this effect, in which several elements are involved:

> *"Light is as vital to human health as a well-balanced diet. As professionals, we probably don't do enough to design lighting for what we do know of these non-visual effects."*

- The low color temperature of the light creates a very red-rich spectrum, flattering to human skin tones.
- The absence of blue light in the spectrum causes the eyes to "soft focus," which of course almost always causes someone to look better.
- Finally, the location of the light source at eye level or below tends to eliminate wrinkles and shadowing over the entire face.

Only recently has electric lighting successfully been used to create this ambience. Pin spots on table centerpieces bounce light off the tablecloth, creating not only drama but the color and omni-direction of candlelight. To achieve this effect properly, be certain to use a low-voltage spot; a 120-volt lamp will probably spill direct light onto the diners' faces, causing deep shadows under the nose, chin, and eye sockets that will ruin the appearance of even the loveliest of companions.

Drama is the the most important first step in creating a romantic setting. Traditional chandeliers create diffuse light that tends to wash out contrast. That's why people tend to put chandeliers on dimmers and light candles for effect.

Design for human beings

Misleading information regarding the potential benefits and damage of lighting products is capable of producing confusion among our clients and the public. Most of the simple solutions, like "healthy" light bulbs are clearly not the answer—there is no product used in lighting design today that is especially healthy or unhealthy when used properly.

On the other hand, light is a powerful stimulant to the human endocrine system, and does set the body clock and activity levels. At a minimum this should tell us of the importance of daylighting and fenestration, as well as encouraging us to spend more of our time out of doors. In the extreme, it means in some situations electric illumination can be used therapeutically to reset melatonin levels and compensate for the lack of daylight. By carefully specifying products like electronic ballasts to eliminate the few side-effects of electric lighting, we can combine day and electric lighting to provide the best possible lighting for people.

As for human instinct, the challenge of dealing with its mysteries will remain what the art of lighting design is truly all about for quite some time—at least until research can distill into some sort of quantifiable formula exactly what causes people to like the best designs so much.■

The Latest on Fiber-optic Lighting Technologies

More than ever before, new materials and better sources are making lighting with fiber optics an efficient, more practical alternative to convention light sources.

By Lindsay Audin

A growing array of commercially available products is making fiber optics a simple and economical way to create dazzling lighting effects. While initially an offshoot of communications technology, fiber-optic lighting is rapidly moving ahead on its own, much as personal computers did in the early 1980s. Once little more than technical toys, some of these systems are now serious contenders for the neon market, and may supplant other forms of display and decorative lighting. Competition is now cutting prices as more and more standardized products become available.

The hydra of light

Several packaged systems are now available that greatly simplify specification and application, but all share the same basic technology. Each starts by generating light at a central point (typically called an "illuminator," "projector," or "light engine") and sending it into the ends of gathered fibers (see photo 1). There are two methods of light distribution: fibers disperse light out of their loose ends (light-directing, see photo 2); or the fibers themselves become a glowing element by instead distributing light out of their sides (side-emitting, see photo 3).

Most systems consist of bundles of many thin strands, ranging in diameter from as thin as a human hair, up to about a sixteenth of an inch. While plastic fibers dominate the market, more expensive glass fiber has become popular for higher-quality installations.

Lumens go round and round...

Two important principles prevail when trying to put light into a fiber and getting it back out where you want it. First, most strands lose much of the light that enters them due to internal reflections (i.e., the light is converted to heat and radiated). Second, a fiber's ability to accept light is limited by how narrowly one can [illegible] into its end. Much of the [illegible] in this field has been [illegible] these challenges.

[illegible] for [illegible] research [illegible]

...And come out here

At the loose end of light-directing fibers, spotlights (also called "heads" or "diffusers") focus the output. Without such devices, the beam emitted from the end of a fiber can spread out 70 degrees or more. While that may be useful when creating a faux candle out of frosted glass, seeking a tighter beam requires a lens-shaped head. Like flood and spot lamps, fiber-optic heads are available to supply beams between 16 and 50 degrees.

Depending on the number of heads, intensity of the illuminator, and other factors, the brightness of each head is somewhere between that of a good flashlight and the smaller incandescent reflector lamps (R20 or MR11). Light-directing systems usually have multiple spotlights only a few inches apart on a track or a bar, however, allowing the practitioner to focus several of these miniature spotlights onto one object, lighting it simultaneously from several angles. The subject then appears bright from any position, especially if it has specular facets, such as jewels.

Early versions of side-emitting fibers were best seen in darkened spaces (e.g., nightclubs or outdoors after sundown) due to their relatively low luminance. Newer models, however, are almost as bright as neon lighting. Changing their colors is as easy as changing a gel placed between the illuminator and the fiber's end.

The obvious advantages

Because the fibers do not directly utilize electric current, they can be applied in wet locations (even under water) much more easily than standard lighting. Energy and wattage savings abound when higher efficacy sources (such as metal halide) are used, and less light is needed since it can be tightly focused without using inefficient baffles.

All light sources (including the sun) produce much more heat than visible light. Even high-efficiency lighting systems emit over three times more energy as heat than as usable light. Fiber's ability to filter out damaging infrared and ultraviolet rays (which do not transmit well through the strands) opens up new opportunities for lighting artwork, museum pieces, and delicate materials such as silk. The Mona Lisa, for example, is now illuminated through fiber optics.

Neat special effects

By placing a color wheel between the illum nator and the fibers, it is possible to continuously change the colors emitted fro the ends or sides of the fibers, an effect tha gives the appearance of rhythmic waves of color in motion. Some illuminators are also designed to strobe or otherwise change the output over time, creating a pulsing or ligh ning-like appearance. When hooked up to a sound system, the fibers can flash and surg with the music, bringing new pizzazz to nig clubs. Better metal-halide models feature "instant-on" circuitry, providing powerful sources without the usual starting and restrike delays.

Nudging aside neon

Side-emitting fiber-optic systems can produce the same effects as neon lighting a lower installation, energy, and maintenance costs. These systems should prove competitive for a number of reasons.

- They are cheaper than custom-bent glass tubes.
- There is no gas fill to leak out.
- Color is easily changed.
- No electric current or interference is emitted.
- Fiber systems use one-half (or less) energ
- Fibers are much more resistant to damag
- Centralized lamp replacement is simple.
- Fiber is safer to apply in many indoor are

These advantages allow creation of outdoor design elements, such as building outlining and fountain illumination, that would have been impractical or prohibitively expensive done with neon.

Lingo specifiers need to know

Describing fibers involves some high-tech lingo borrowed from the fiber-optic commu cations industry. "Line loss" is measured in decibels per kilometer, most commonly referred to just as "DB." "Acceptance angle (measured in degrees) and "numerical aper ture" (a unitless quantity) describe the abili of a fiber to accept light into its end.

Here's what it all means. As with any conducting medium, some energy is lost passin through fibers. Line losses range widely, an are typically much higher for plastic than

s. In general, the cheaper the fiber, the er the line loss. Plastic fibers often lose percent (or more) of the light entering n for every foot of length. That does not n 100 percent loss at 100 feet (since the is exponential, not linear) but it does n that all fibers convert some of their into heat, or send the light out of their s. By comparison, a high-quality glass of the same length and diameter may only a fifth as much, but costs more and require more expertise during installa- Many applications do not, however, ire very high quality and thus use the er-loss varieties to limit cost.

ptance angle is the maximum beam ad of light (measured from the fiber's that will successfully enter one end of a . Any light striking it at a higher angle be reflected away. More efficient fibers se with low line loss) have lower accep- e angles, meaning that the illuminator's ut must be focused in a tight beam. rs work well in fiber-optic communica- because they have very tight beams so st all their light easily enters fibers. To eve similar results with metal halide or tz-halogen sources, reflectors and optics employed to create "pin spot" beams into nds of fibers.

ierical aperture is just the sine of the ptance angle, and is thus another indica- f the beam spread that a fiber will pt. Once again, a low number indicates only tightly focused beams will enter the

of the most dazzling fiber-optic tech- es is the concentration of many -quality beams from one hidden light ce. Jewelry cases conceal miniature ks (see photo 4) along their interior s which hold many tiny spotlights focus- beams on individual pieces displayed in the case. Since little or no light lands from the jewels, such pieces appear to kle from within. The illuminator is en in the base of the case.

ctical limitations

ith any technology, there are limits. rs cannot be bent through very tight without causing damage or increasing losses, though few applications require tight bends. All fibers (especially cheaper plastic varieties) absorb blue light, making colors appear "warmer" as fiber length and line-loss rates increase. Light sources with higher color temperatures (those rich in blue light, such as metal halide) are thus well suited for use with fiber optics.

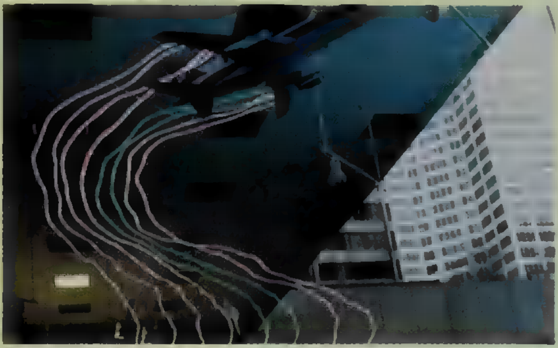
A wide array of advanced fiber-optic products has helped fiber-optic lighting finally achieve its promise. Some are pictured below: lens-fitted optic fibers and an illuminator box (1); track-mounted fiber-optic heads that can used for lighting display cases or other installations (2); side-emitting fibers, bright enough to challenge traditional neon (3); miniature adjustable spotlights that can be aimed where needed (4).

Courtesy of Lumenyte International

1

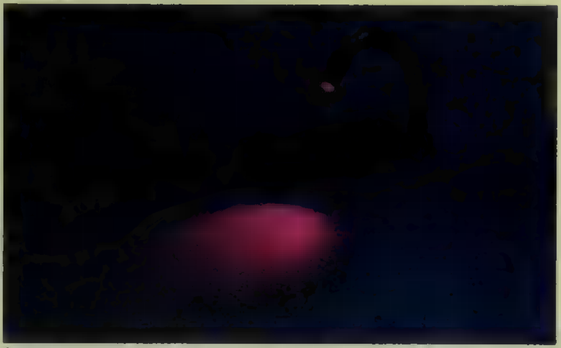
Courtesy of Pinpoint Fiber Optics, Inc.

2



Courtesy of Fiberstars, Inc.

3



Courtesy of Fiberstars, Inc.

4

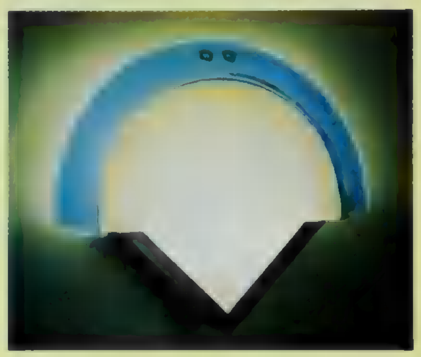
Even the best fibers have line losses too high to offer a practical way to widely distribute standard lighting, and installation costs still limit this technology to specialty applications. Do not expect your local lighting equipment rep to have a grasp of this technology just yet: the only way to be sure that a job comes out right is to hire a specialist familiar with the technology, and test a sample unit in the field.

One suggestion to the fiber-optics industry: product literature needs work and standardization. Comparing this technology to standard lighting methods would be greatly simplified if, for example, brochures were more descriptive of equipment photometrics. Describing fiber luminance using a standard light source would, say, make it easier to discern what illuminator wattage would be needed to achieve a desired effect. At this point, many possible users are stymied because they have no way to figure out what to install without already having expertise in this field.

Sharing the knowledge

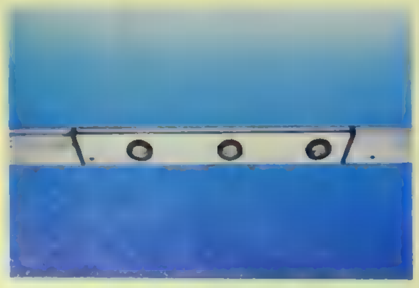
George Washington University, in Washington, D.C., now offers four-day classes in glass fiber optics, and some local chapters of the American Society of Interior Designers (ASID) are also providing courses. Such training will provide clever designers with new ways to make their work shine. ■

316. Angular sconces
Designed by Ron Rezek in three different sizes and shapes, the Wedge sconce accepts energy-efficient fluorescent lamping. The 580 (10-in. wide by 10-in. deep) takes two PL-13 lamps; models 581 and 582 each use one 39W biaxial lamp. Housing is powder-coated steel that can be ordered in custom colors or a faux finish. 516/694-9292. Artemide, Inc., Farmingdale, N.Y.



317. ADA-compliant
One of four new sconces that meet Americans with Disabilities Act requirements for public-access corridors, Luna has a crescent-shaped diffuser of poured opal Murano glass set into a blue, gray, or crystal yellow-dotted glass band. Designed by Roberto Pamio, the fixture may be specified for incandescent or fluorescent sources. 800/832-3360. Leucos USA, Inc., Edison, N.J.

318. Sinuous outdoor spot
Metamorphosi, new interior/exterior (UL listed for wet locations) luminaires, take a range of sources including metal-halide, HPS, and quartz-halogen lamps. The 26-in.-high light pictured is made with three individually adjustable segments. Designed by Fabio Reggiani, Franco Roman, and Pino Usicco; housing is cast aluminum. 212/421-0400. Reggiani, New York City.



319. Undercabinet mix/match
The Little Inch Connecting System are modular, plug-together components that can put halogen accents next to fluorescent strips in the same row: only the first unit needs hard wiring. Snap-together connectors let the system turn corners, round broad curves, or "jump" over columns or partitions. Housings are aluminum; circuitry permits single or all-on operation. Alkco, Franklin Park, Ill.

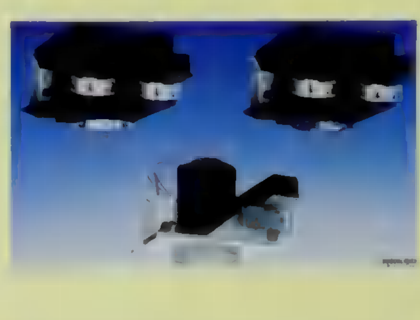
320. Pulldown pendants
An updated version of a '50s classic, pulldown lights have glass shades in matte opal or alabaster. Metal canopy and glass-holder can be ordered in white or polished-brass finishes; fixtures take a single 60- to 100W G-25/G-40 lamp. Spiral cord and tensioned cable allow the lamp to be positioned at any height from 26 to 65 in. from the ceiling. CSL Lighting Mfg., Inc., Valencia, Calif.

321. Sharp-cutoff area lightir
A 21-in. housing size has been add
to the CC/CCS luminaire series, a
cylindrical shape said to "maintain
relationship to contemporary arch
tecture". Model CC has reveals th
can be custom finished; the CCS h
smooth sides. Horizontal-burn lam
in field-rotatable reflectors solve i
vidual illumination problems withi
constant fixture geometry. Kim
Lighting, City of Industry, Calif.

322. Nostalgic feel
G-5 luminaires are said to be equa
useful as reading lamps in a librar
or as direct lighting for restaurant
patrons. An unusual, through-tabl
bolt attachment secures the disk-
shaped base and lets the lamp qua
for its UL listing. Cone-shaped dif
fusers may be green, as shown, or
white; G-5 pendants and sconces a
available. 203/966-9559. TSAO+C
New Canaan, Conn.

323. Punchy CFL luminaires
Elliptipar's new 4X fixtures are sa
to combine the controlled illumina-
tion of incandescent lighting with t
energy efficiencies of CFL sources
An asymmetric reflector and preci
centering of two twin-tube compac
fluorescent lamps focuses all light
output on the target surface. Avail
able in configurations for all types
mountings. 203/931-4455. Elliptipa
Inc., West Haven, Conn.

324. Machine-age lamps
Tuxedo lamps, designed by Piotr
Sierakowski, have diffusers of Tri
opal blown glass set on knurled-st
less-steel stems. The table-lamp
model stands 40-in. tall, with a 13-i
diameter, 5/8-in.-thick glass table a
armchair height. List price: $579 f
the standing lamp; $379 for the ta
top version. 718/204-5700.
Baldinger/Lowy Partnership for
Design, Astoria, N.Y.



325. Metal-halide downlights
To be introduced at Lightfair,
Arclites are accents, wallwashers,
and downlights designed specifical
for the new energy-efficient metal-
halide PAR-38 lamps. Suggested
applications include lobbies, retail
stores, auditoriums, airports, and
public spaces with medium- to hig
ceilings. 212/838-5212. Edison Pri
Lighting, New York City. ■

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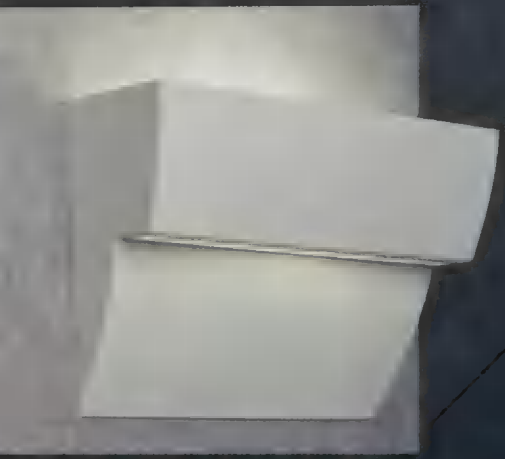

phaces

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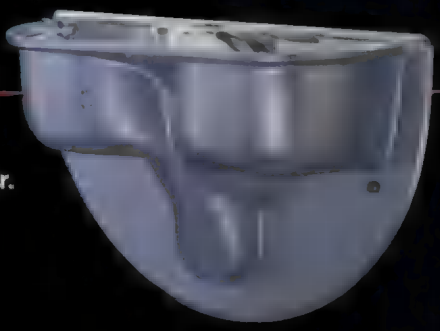

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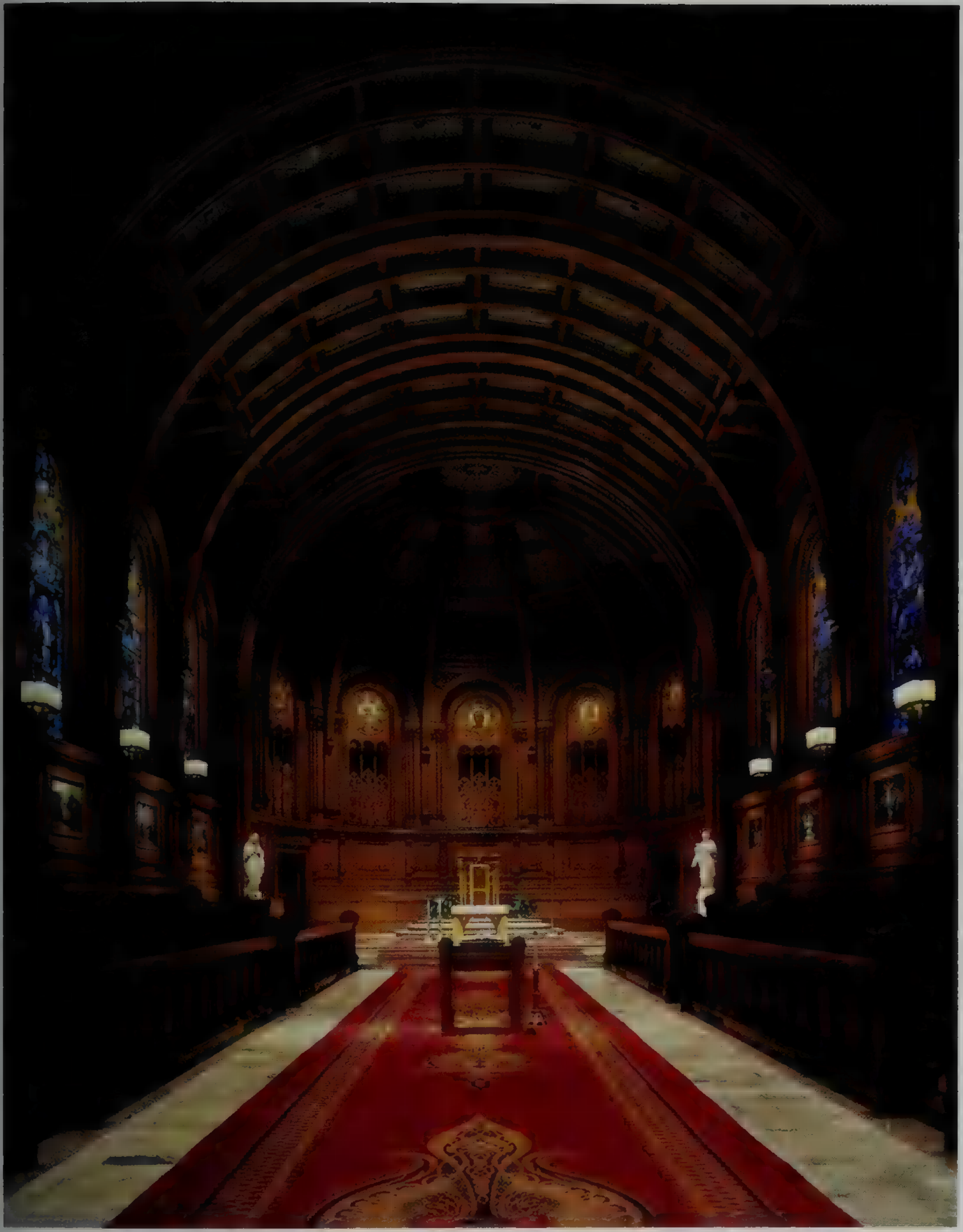

The Lighting Design Required Much Contemplation. The Results Will Inspire The Same.

St. Patrick's Chapel, Menlo Park, California. Stunning proof of what devotion to quality lighting can accomplish.

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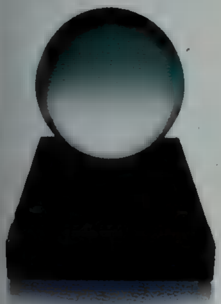

And the lighting De Alessi chose, GE long-life, quartz-halogen lamps, beautifully and efficiently complies with California's strict 20th-century energy requirements.

All of which is why De Alessi captured the prestigious 1993 GE Edison Award for excellence in lighting design. To find out how you can achieve equally inspiring results, call your GE Lighting specialist at 1-800-523-5520.

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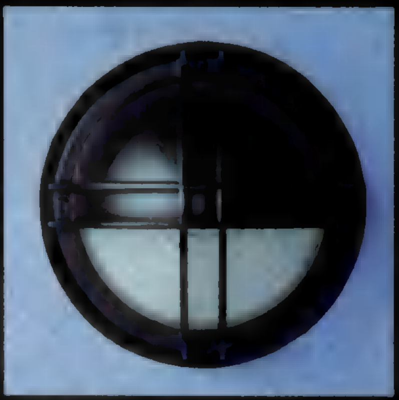
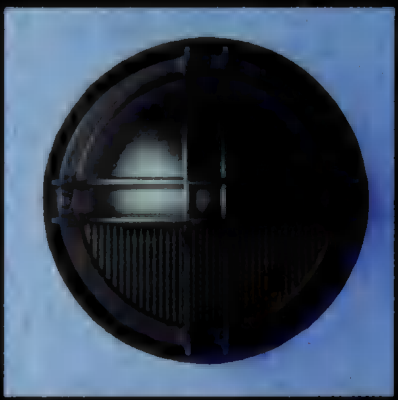
Full Face
[illegible] amounts of [illegible]



Half Face
Emphasizes downlight while still providing fixture glow.



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Why Good Lighting Turns Up In Good Renovation Projects

I wrote in the last issue of RECORD LIGHTING that it was just a coincidence that all of the feature stories in that magazine were renovation or rehabilitation projects. Once again, almost all of this issue's feature stories have some renovation angle, with the exception of the Joslyn Art Museum Addition—and even that building had extensive lighting work done later when the existing building was renovated.

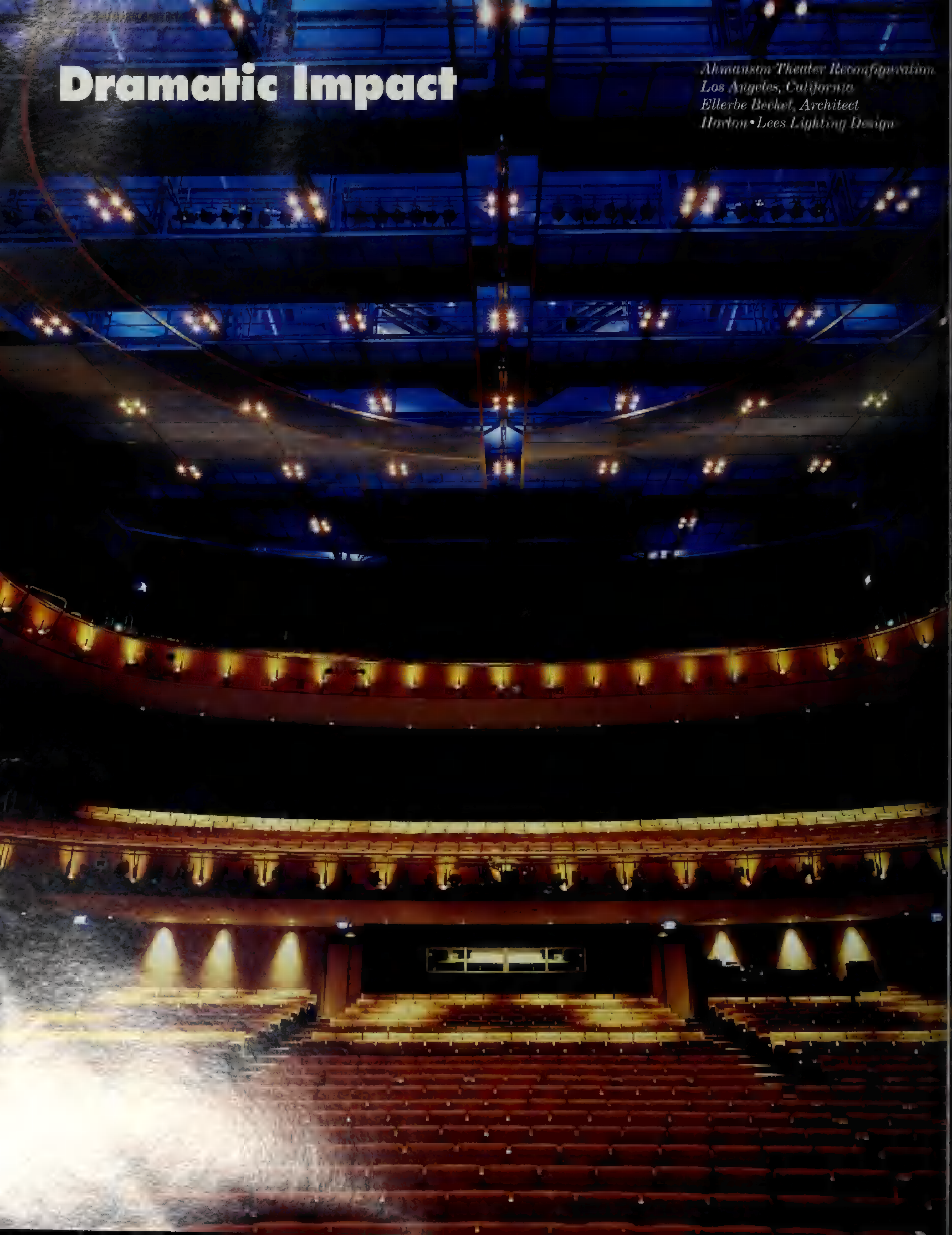
Is this another coincidence? I don't think so anymore. There are a number of reasons really good lighting design tends to appear in renovation projects. Sometimes after putting up with bad or merely mediocre lighting long enough, owners insist that lighting play a significant role in adding a renewed sense of place to their renovated buildings, and are willing to put money in the budget for the work. Ripman Lighting Consultants' collaboration with Communication Arts at the Prudential Center's Retail Arcades (page 30), is a good example of how how much a lighting upgrade can contribute to bringing alive a sleepy retail development. And although the Ahmunsen Theater (page 32), had such extensive work the project was almost like new construction, this project shows how much Horton • Lees Lighting could creatively accomplish on a budget when an owner had a commitment to good lighting and gave the designers an opportunity.

Sometimes architects imbue their clients' pride in a historic building with what I see as a strong sense of "lighting ethic." Gerald Allen and Jeffrey Harbinson show such strong principles in the lighting design and custom fixtures for Christ Church at Oyster Bay, New York (page 35). And, though the new galleries at the Joslyn Art Museum (page 28) are new construction, the collaboration between Sir Norman Foster and lighting designer Claude Engle are another great example of commitment to excellence in lighting design.
Charles Linn

anufacturer's' Sources
ted on page 49

Dramatic Impact

Ahmanson Theater Reconfiguration
Los Angeles, California
Ellerbe Becket, Architect
Horton•Lees Lighting Design



phanous screen of perforated metal hangs like a giant chandelier r the Ahmanson Theater, a dramatic device used to create a sense limension and scale. The theater, a part of the Los Angeles Music nter Complex, was a rather featureless black-box theater of 1960s tage. The design team was asked to transform the huge space into erformance hall with the level of intimacy of the turn-of-the- tury theaters of Broadway, but on a strict budget.

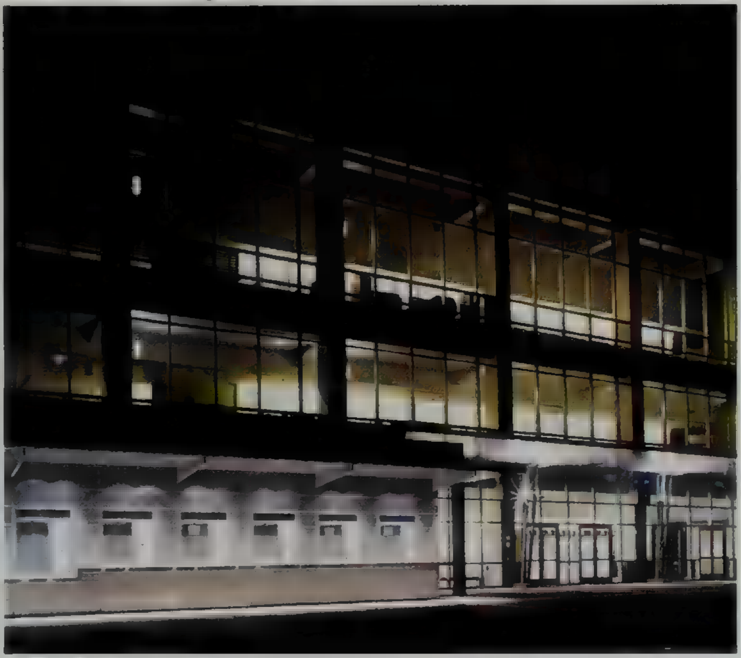
e effect was achieved by moving in the walls and ceilings, creating ovable partition, and adding the metal screen at the ceiling, whose aphanous and kinetic qualities are brought about by a combination limmable, colored light and perforated metal," according to hard Kuhn, senior designer for the project for architect Ellerbe ket.

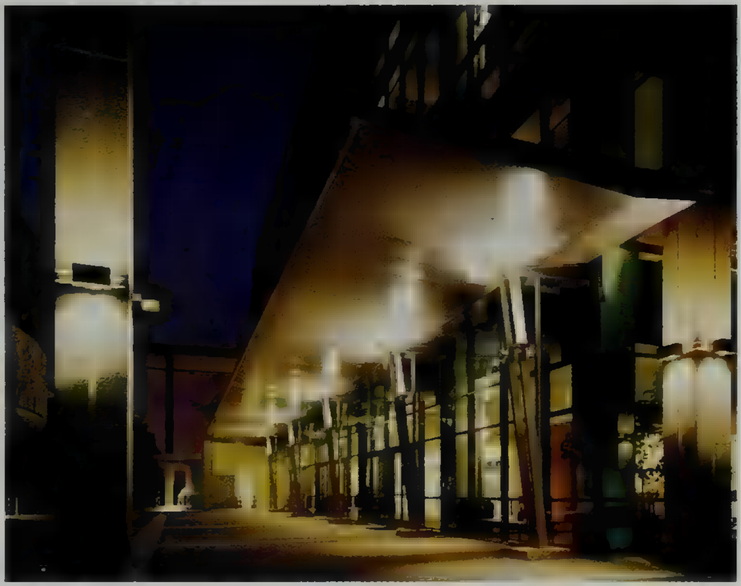
rking with little money and a strict energy code, the lighting igners, Horton•Lees Lighting Design, achieved the sense of illu- n and drama that sets the mood for the performances. "It was remely challenging in that everything had to be simple, yet have a matic impact," says E. Teal Brogden, principal at Horton•Lees.

e metal screen, treated like a sculpture in the space, is lit in two ys. A sense of illusion and mystery has been created by PAR38 hroic-blue lamps mounted in inexpensive porcelain sockets shining onto the blue-painted ceiling. Groups of four 50-watt PAR30 HIR logen infrared) lamps sparkle like stars on the metal screen below, viding a comfortable 25 fc 50 feet below. PAR20 track fixtures unted in specially created slots in the balconies also do double duty scalloping the wood veneer of the balconies, as well as lighting the lerside of the perforated metal scrim at its edge.

e drama is carried through to the exterior, where, once again, the ck box has been deconstructed. The original opaque glass curtain l has been replaced by a combination of translucent and transpar- glass, so that the perimeter walls of the theater and lobby, lit by watt PAR38 track with spread lenses in architectural coves, cast a rm glow on the street outside. *Nayana Currimbhoy*

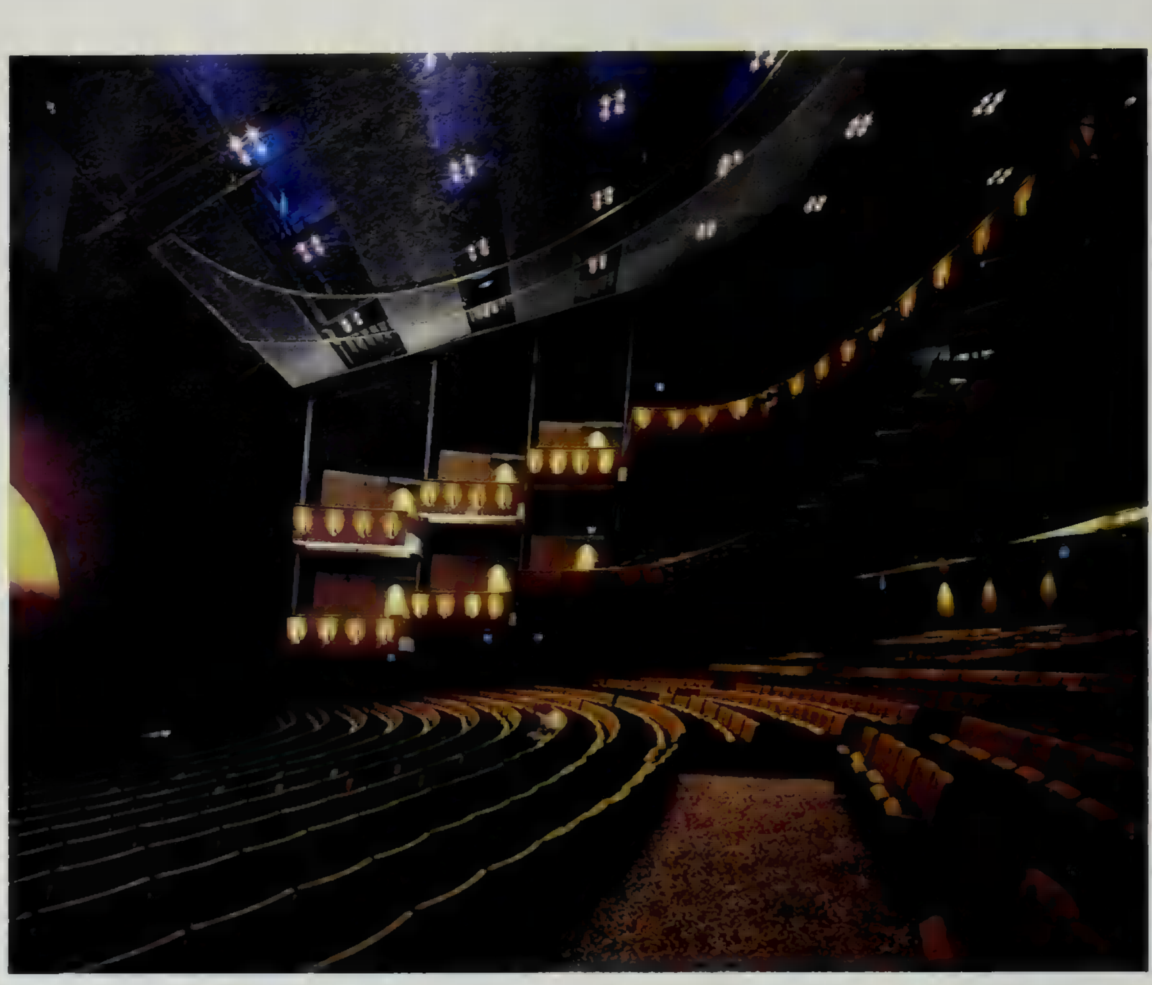
© Adrian Vilicescu photos





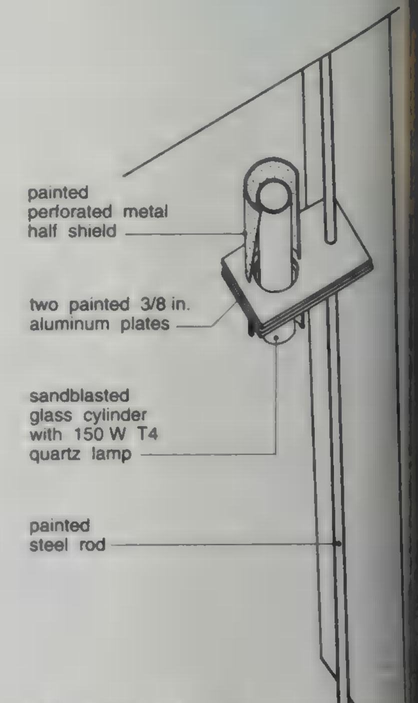
Conceived as a sort of giant chandelier, a perforated metal screen (opposite) adds drama and scale to the theater. The screen—which also works as a scrim for theatrical lighting—conceals blue-dichroic PAR38 lamps uplight the ceiling above.

The translucent glass of the curtain wall (top) creates a showcase for the glowing lobby walls within. The entrance canopy is uplighted with pairs of MR16 lamps. An ingenuous "welcome mat" of light is created by tiny MR16 downlights at each doorway.



Track fixtures lamped with 50-watt PAR20s (opposite) accentuate the slots in the woo veneer of the balconies, while also uplighting the metal ceilin In the bar area (bottom left), fluorescent lamps with blue gel light a blue-painted ceiling to continue the design theme of th ceiling inside the theater. They are complemented by quartz w washers. The only custom luminaires on the project (photo bottom right and drawing belo are mounted in the lobby. Each is illuminated by a 100-watt frosted quartz T4 lamp mounte inside a frosted glass sleeve, an wrapped with a twist of perforated metal that echoes th auditorium's ceiling.

Credits
Ahmanson Theater Reconfiguration
Music Center of Los Angeles
Los Angeles, California
Architect: *Ellerbe Becket—Richard Kuhn, Randy Guillot, Tom Goffigon, Mike Hallmark*
Lighting Designer: *Horton•Lees Lighting Design–E. Teal Brogden, design principal; Becky Bowen, assistant designer*
Electrical Engineer: *Ellerbe Becket—Marc Sevelle*
General Contractor: *Rudolp & Sletten—Bart Ropers*


painted perforated metal half shield
two painted 3/8 in. aluminum plates
sandblasted glass cylinder with 150 W T4 quartz lamp
painted steel rod

CUSTOM LIGHT FIXTURE
for the Amudsen Theatre

EXIT
EXIT

The Art of Daylighting Art

Joslyn Art Museum Addition
Sir Norman Foster and Partn
Henningson Durham Richard
Architect
Claude R. Engle Lighting Desi

The addition to the Joslyn Art Museum in Omaha is a surprising departure from what one expects of Sir Norman Foster—none of the structural expressionism seen in his Hong Kong and Shanghai Bank is at work here. Yet the addition borrows little from the Joslyn either, save for its crispness in detailing, parts of the materials palette, and a studied sense of the 1931 Art Deco original's proportions. But the Joslyn's new exterior does bring to mind Foster's 1977 Sainsbury Centre at the University of East Anglia, England [RECORD, Mid-August 1977, pages 60-63]. Substitute pink granite for the Sainsbury's windows and metal panels, and there would be a definite family resemblance. And gallery spaces in the interior of both buildings have a similar function: the temporary exhibition of art.

But where daylighting is concerned, there is no resemblance. At Sainsbury, strip skylights run the length of the building, shielded by "tunable" louvers hung beneath a massive space frame. The louvers were intended to be adjusted for varying light conditions, but almost every photograph shows direct sunlight penetrating into the gallery. Daylight control was considered, but seems to have been left subservient to keeping the roof and ceiling structure pure and flat.

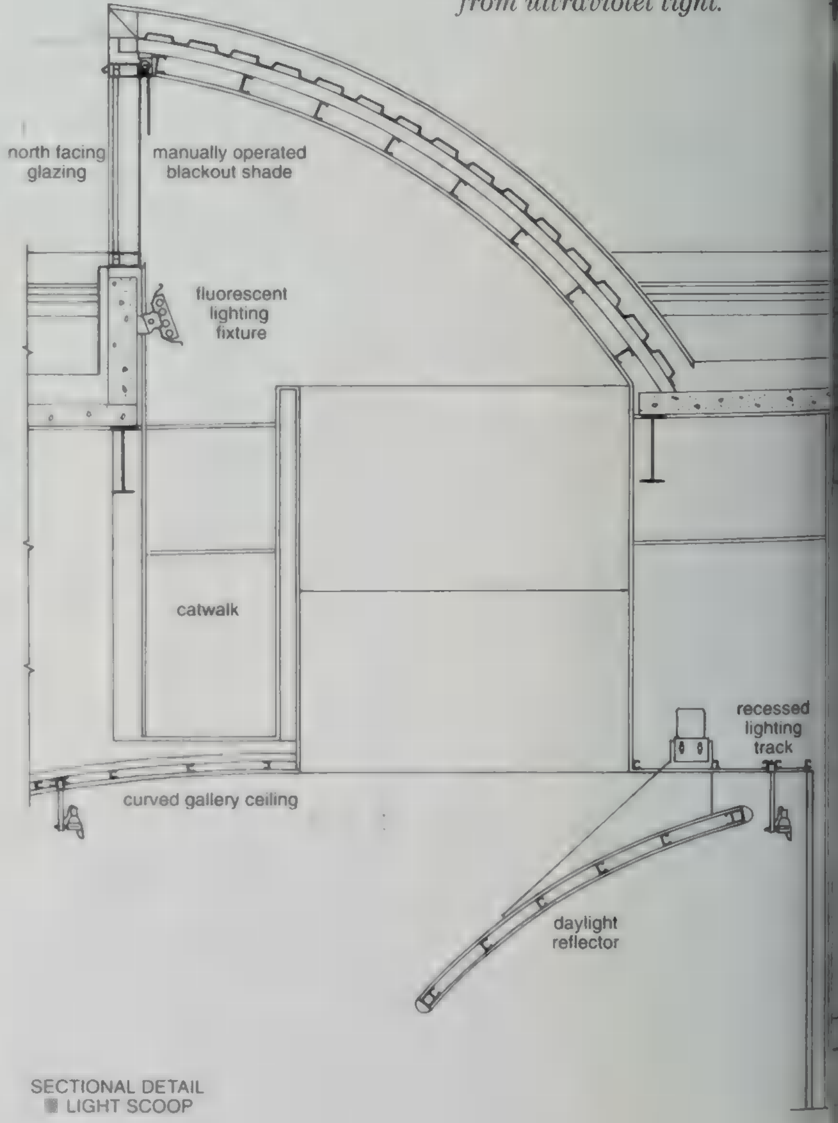
Claude Engle worked with Foster to design the lighting and daylighting for the Joslyn's new temporary exhibition spaces. At issue was the desire for a strong daylight component, while meeting the severe limitations on light and UV levels set by the owners of art on loan. Engle's and Foster's solution, in contrast to Sainsbury, expresses the daylighting system over all else (photos opposite). "The problem of controlling the daylight and UV was solved by introducing the natural light by reflection only," says Engle. "This permits the space to be enhanced by natural light, with lower levels on the art, and reduces the UV exposure which is, to an extent, absorbed by the paint."

Track fixtures were to be hung on the curved portion of the ceiling that would be washed with daylight, so Engle elected to recess the track itself, to hang smaller than normal PAR30 fixtures, and to use more of them to get the proper coverage. The tracks were positioned so fixtures could be placed to give the proper incident-light angles for art on the gallery walls and for front- and backlighting free-standing sculpture. Installation of bulky transformers was avoided through the use of the PAR30 track heads, and a custom knuckle joint on the fixtures' stems allows them to be properly aimed from any point on the curved ceiling. *Charles Linn*

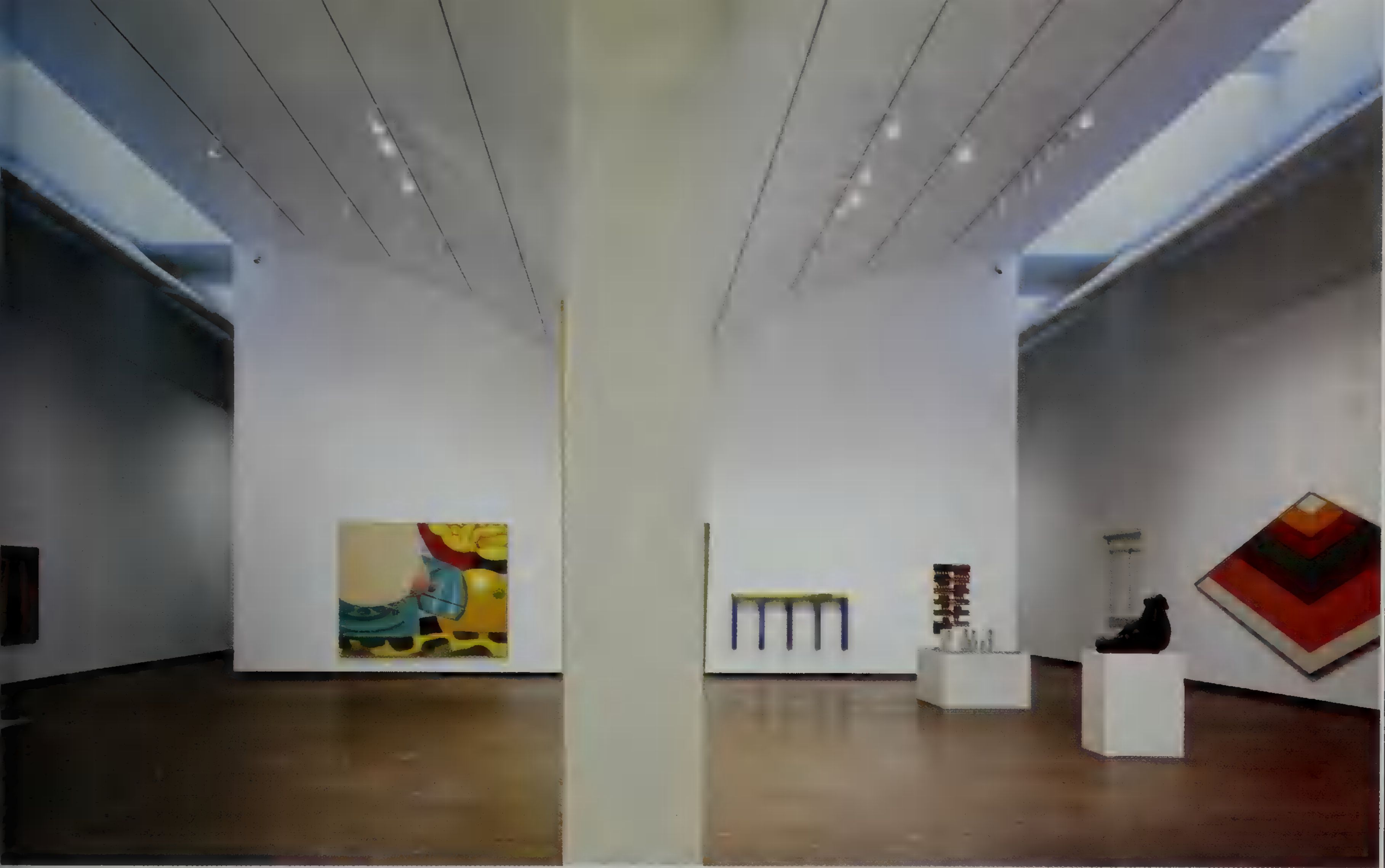
Credits
Joslyn Art Museum Addition
Omaha, Nebraska
Client: [illegible] *Beal, Director*
Architect: [illegible] *Foster and Partners—Sir Norman Foster;* [illegible] *project architects*
[illegible] **Interiors, and Engineers:** [illegible] *—Patrick Mc Dermott, project* [illegible] *manager; Douglas Wignall, Jeff* [illegible] *architectural team.*
[illegible] *Lighting Consultant—Claude* [illegible] *lighting designers*

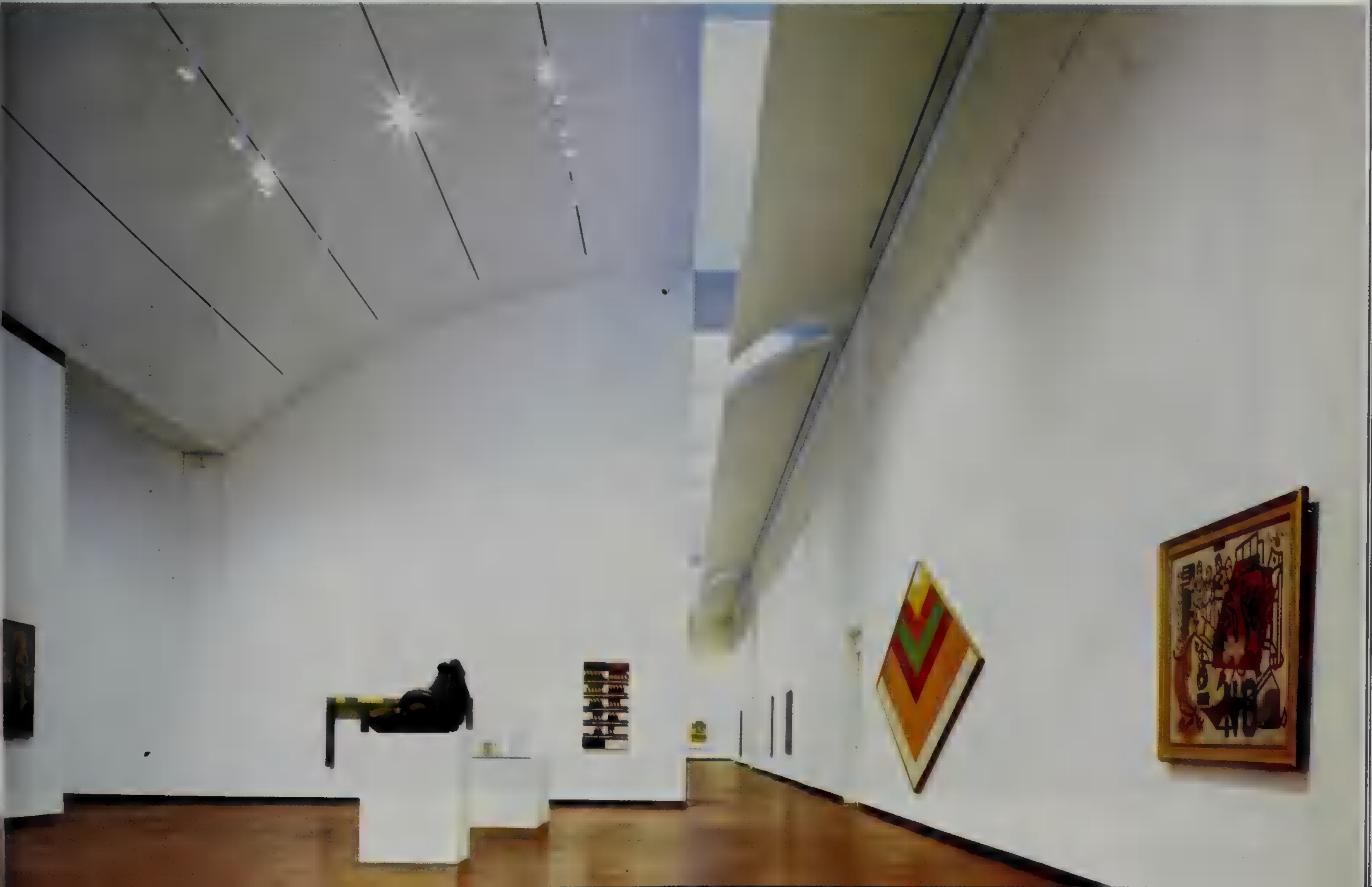
©Pat Drickey photos

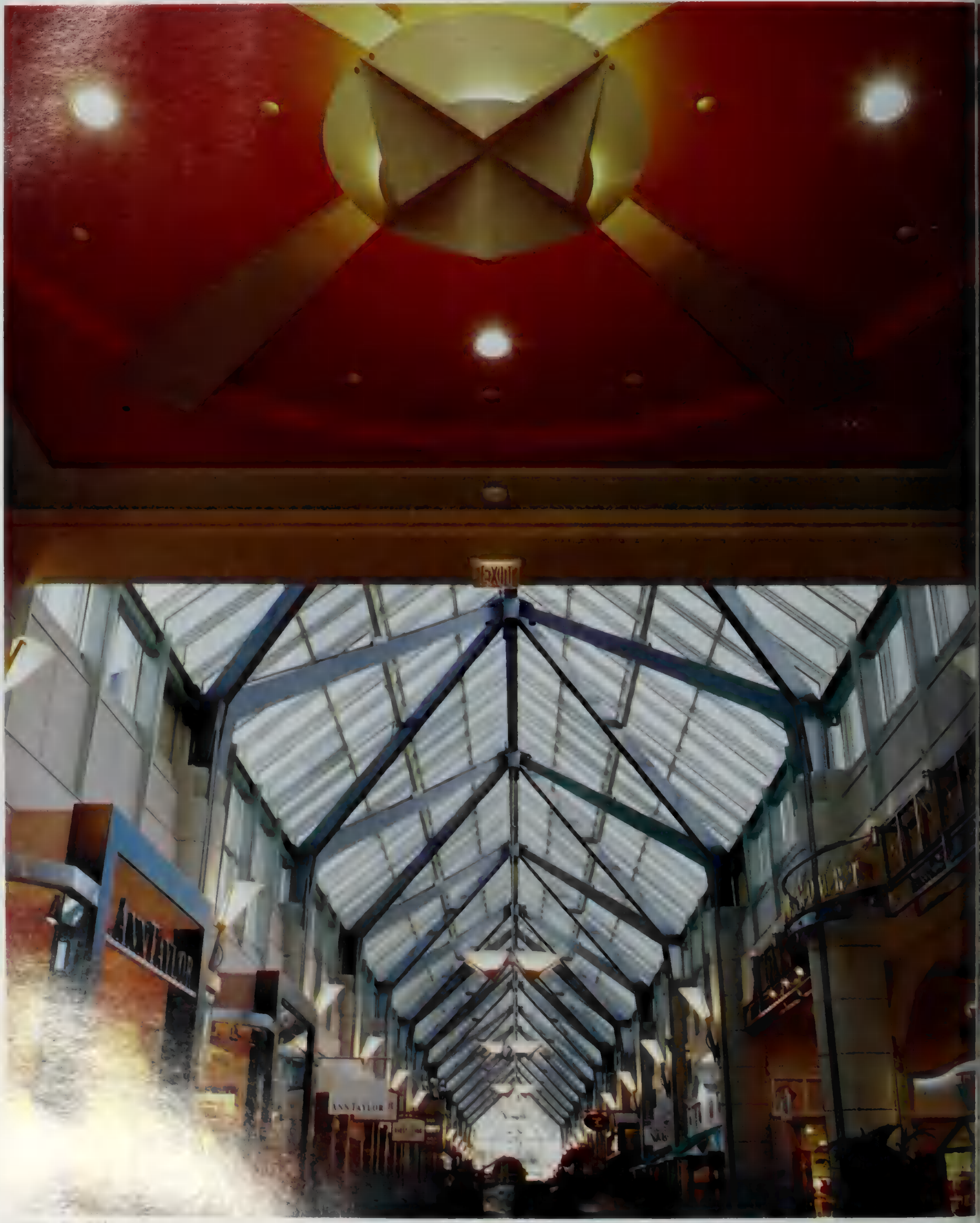
Outside, the Joslyn Art Museu addition (right in photo above) gives no hint of the complex da lighting system at work in the galleries (opposite). The system of vaults and airfoil-like struc tures (drawing below) only allows indirect, reflected light i providing a soft glow while mi mizing any chance of damage from ultraviolet light.



SECTIONAL DETAIL
LIGHT SCOOP






EXIT
ANN TAYLOR
ANN TAYLOR

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rom the Arcane
o the Arcadian

Prudential Center Retail Arcades
Boston, Massachusetts
Sykes Jennings Kelly & Brewer, Architect
Communication Arts, Designers
Ripman Lighting Consultants, Lighting Designer

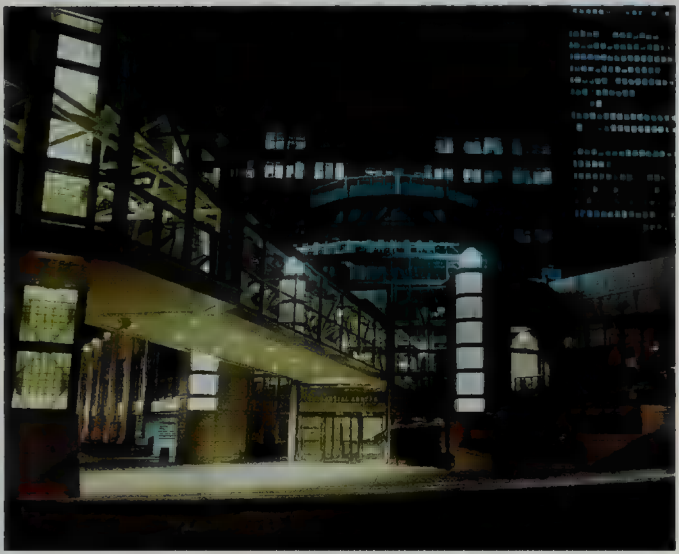
ugh it was located between two prime shopping areas in down-
n Boston, the Prudential Center Retail Arcades lacked the street
sence needed to attract passing pedestrians. Built over the Massa-
setts Turnpike in 1965, the arcades were accessible by escalators,
n to the elements, and bathed in the harsh green glare of
cury-vapor downlights.

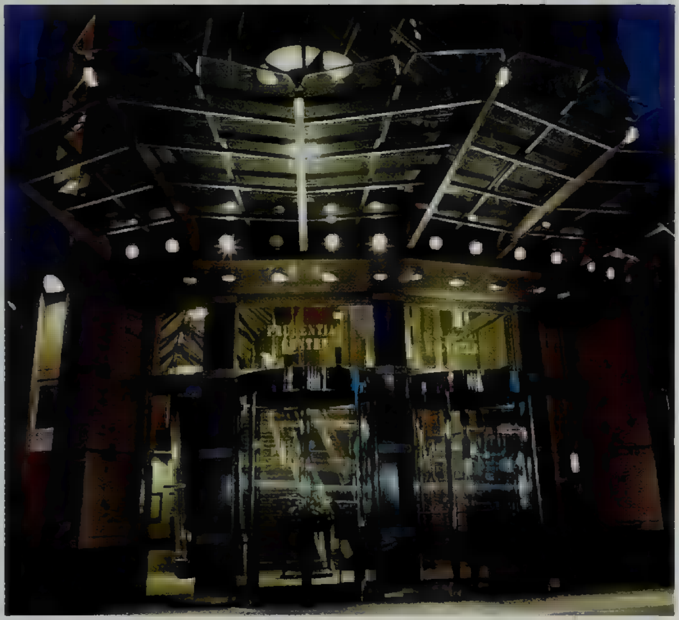
ambitious and expensive renovation program has transformed the
ades and the land around the Prudential Center into a warm, invit-
environment. As a result of a close collaborative effort between
hitects Sykes Jennings Kelly & Brewer of Houston, Communica-
Arts of Boulder, and Ripman Lighting Consultants of Boston, the
arcades have achieved a grandeur reminiscent of markets and
n stations of Europe. High, pitched planes of glass, fritted to
en the impact of the direct solar load, bring daylight streaming
the arcades, supported by great steel beams.

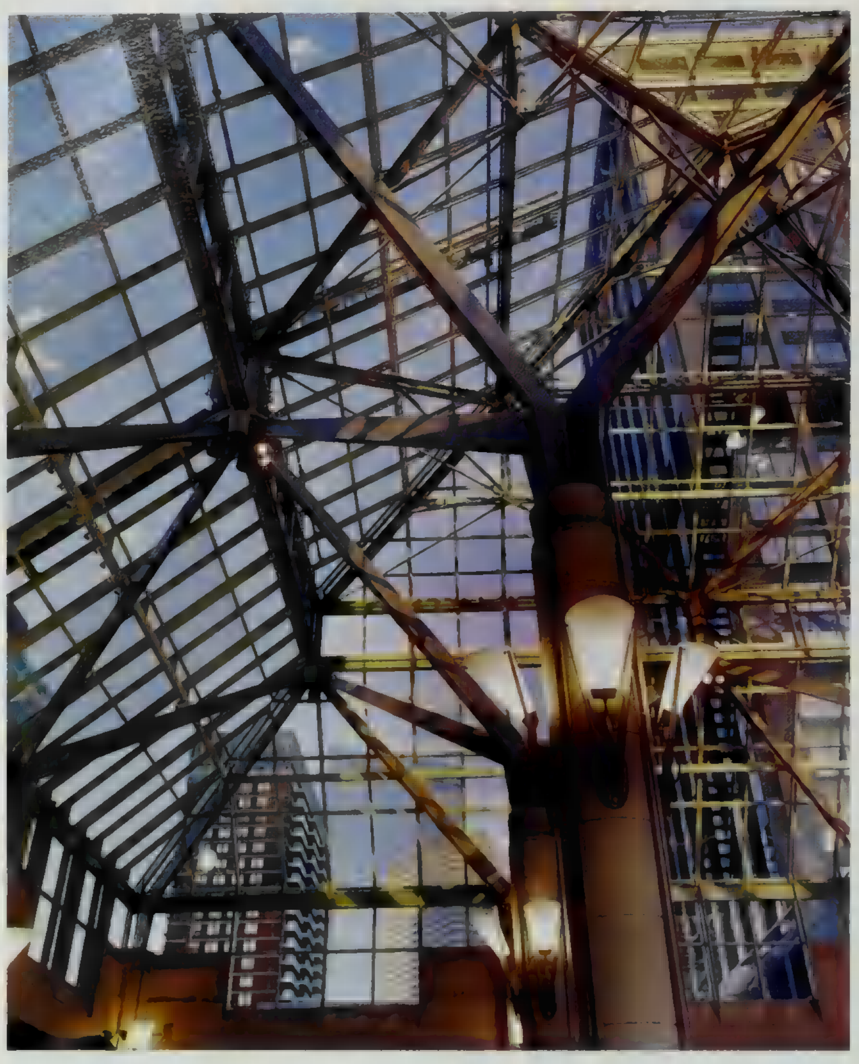
hin this massive volume, the lighting is used to create a more inti-
e sense of scale. Seven custom-fixture types set the style of the
ject, and establish a visual plane midway between the peak of the
ss roof high overhead and the people below. Designed initially by
nmunication Arts, the fixtures were then developed through draw-
s, models, and prototypes by Adam Kibbe of Ripman Lighting.
sconces and pendants (photo opposite) are lit primarily by 26-
t 2700K compact fluorescents, though the pendants incorporate
elded 250-watt quartz PAR38 floods to accent planters below.

ddition, the lighting designers created layers of light which invest
arcade with the glamour and excitement sought in a shopping
ade. The junctions of the roof beams and columns are uplit by
den, self-ballasted, open-reflector compact-fluorescent retrofit
ps. Where the supporting steel beams join at the apex of the roof,
pair of cylindrical downlight cans uses 250-watt quartz PAR38
ps to complement the pendants, while a second pair of cylinders
s energy-efficient, long-lived 250-watt metal-halide lamps for
er-hours operation and clean-up. Quartz sources at entries,
nage, and over planters are used to create drama by producing
trasting sharp, dense shadows.

lighting program continues to the exterior. An enclosed bridge
photo right) is flanked by light towers lit by metal-halide and
h-pressure sodium, adding ceremony and drama to the passage
giving shoppers a foretaste of the pleasant experience that awaits
m inside. An entry canopy (center photo) of fritted glass is accen-
ted by 90-watt halogen PAR38 down- and uplights, which are
vered for glare. Zigzag metal banners on the columns (bottom
to) are backlit by 240-watt 12-volt PAR56 very narrow spots.
yana Currimbhoy

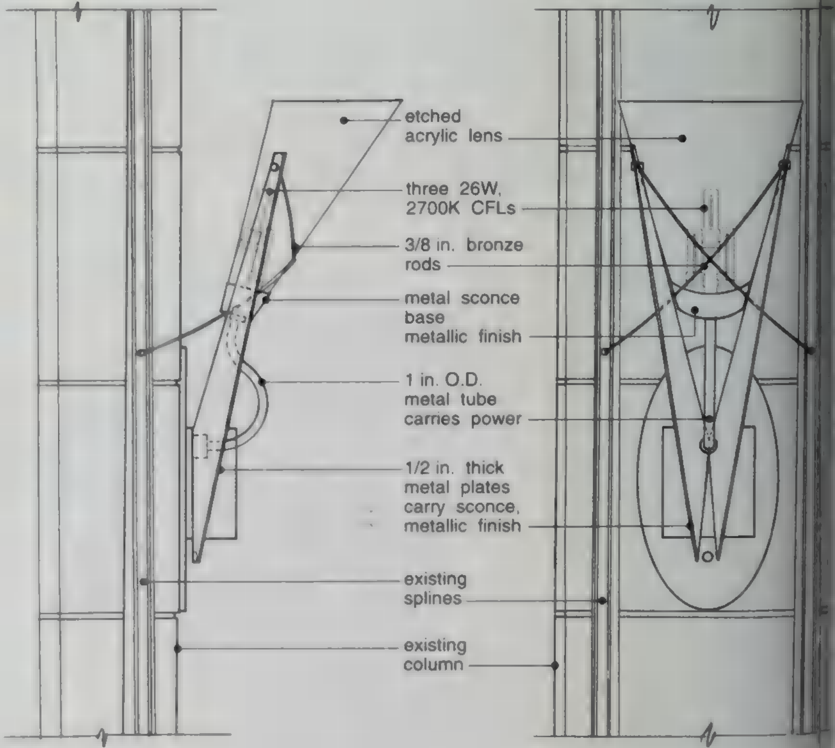






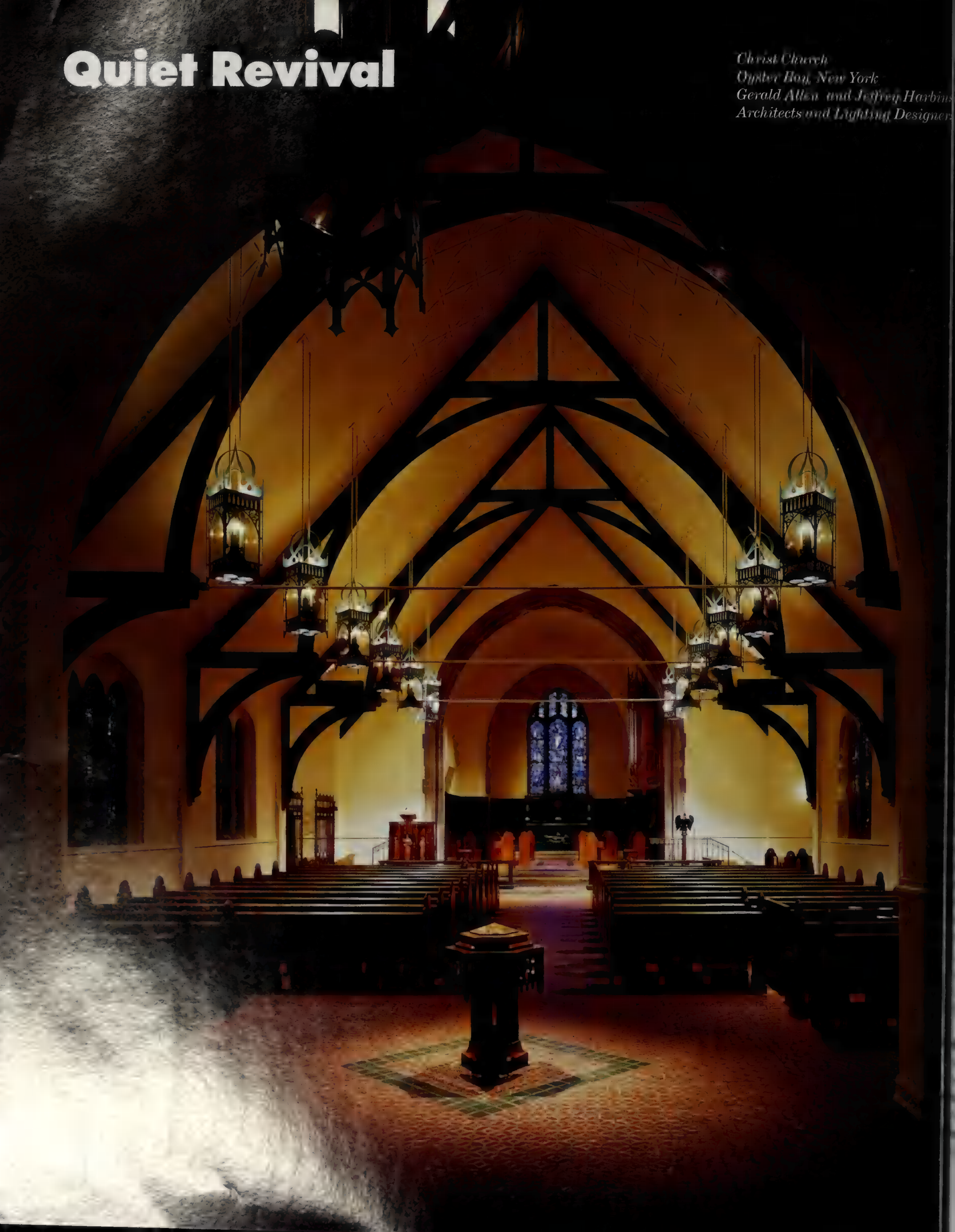
Custom sconces lit with 26-watt 2700K
compact-fluorescent lamps (left), and ope
reflector compact-fluorescent pendants hu
beneath the junction of the supporting stee
beams (opposite) create layers of light wit
the large arcade. The custom light fixtures,
made of acrylic, polished brass, and paint
steel, were designed by Communication A
and developed by Ripman Lighting Consu
tants. Since the arcades are used as a
circulation spine, they remain open all ni
at the request of the community. To save
energy during off-hours, however, they are
by 250-watt metal-halide fixtures mounted
the peak of the ceiling.

Credits
Prudential Center Retail Arcades
Boston, Massachusetts
Architect: *Sykes Jennings Kelly & Brewer*
Architect of Record: *Benjamin Thompso*
& Associates
Lighting Designer: *Ripman Lighting Co*
sultants—Chris Ripman, principal; Adam
Kibbe, project manager
Retail Designer: *Communication Arts—*
Henry Beer, John Ward, Ken Lewandowski
Engineers: *LeMessurier Consultants (stru*
tural); R.G. Vanderweil Engineers
(mechanical/electrical)


etched acrylic lens
three 26W, 2700K CFLs
3/8 in. bronze rods
metal sconce base metallic finish
1 in. O.D. metal tube carries power
1/2 in. thick metal plates carry sconce, metallic finish
existing splines
existing column

Quiet Revival

Christ Church
Oyster Bay, New York
Gerald Allen and Jeffrey Harbins
Architects and Lighting Designer



t Church of Oyster Bay, New York, has had a curious evolution. gend has it that the original design came from the drawing board Villiam Potter in 1878. Potter was a proponent of the American sion of High-Victorian Gothic, and vintage photographs of the rch, where Teddy Roosevelt and his family worshiped, show a all cottage-like structure trimmed in delicate Victorian ginger- ad. No one knows exactly why, but when the church was odeled in 1925 by the firm of Delano and Aldrich, all traces of the torian were stripped off, or simply covered over with an extremely tere veneer of roughly squared-off stone, set in courses.

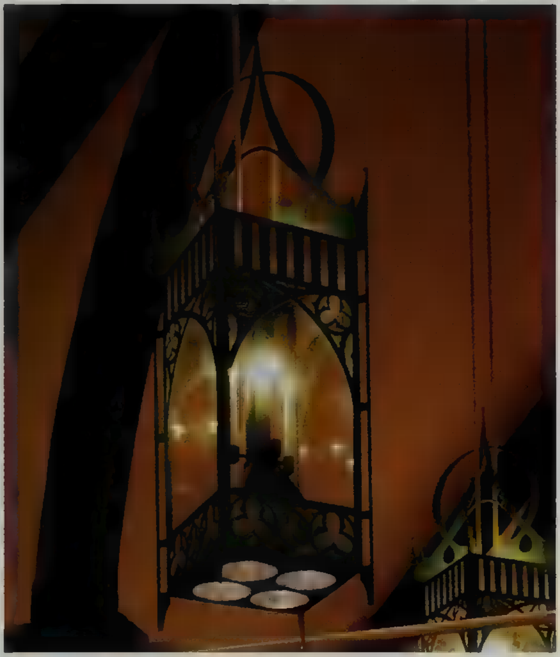
ald Allen, of Gerald Allen & Jeffrey Harbison, architects of the rch's most recent renovation, offers one explanation. "I think [the ishioners] were just plain embarrassed by the Victorian once it got e 1925. They had heard about Ralph Cram and Bertram Goodhue, just didn't quite get it. I figure they were just trying to good- ify themselves." At the same time the exterior was given a new , which stylistically gave the church the appearance of being older n the original; the sanctuary was gutted as well. "We don't know t the lighting was like originally," says Allen, "but from the tographs it looks grim. It was made even grimmer later on by installation of some of those big old sheet-metal lanterns with 0-watt A lamps in them, and spotlights at various places."

en's views on how other churches were lit historically influenced new work at Oyster Bay. "If you look at the early lighting of really ortant buildings like St. Thomas Church in New York City, you lize the early versions were quite crude. Electric lighting was a y new thing, and they were still in a 'let's hang up a light bulb' ge. Then they started seeking out what the figurative image of this t bulb should be: chandeliers, censers, and all kinds of ecclesiasti- objects. In the 1950s almost all churches got relit, and for good son. But they used as the model the lighting of a proscenium ater, concealing spotlights and aiming them toward the front. The ging fixtures generally became places to hide up- and downlight- and the fixtures themselves only provided twinkles."

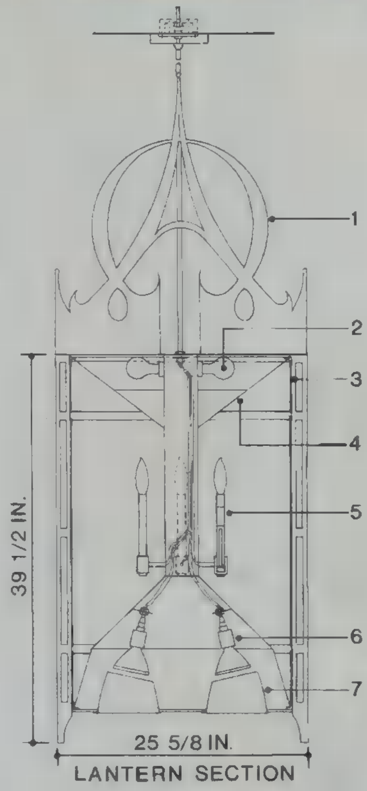
aining the idea of the multi-function lanterns (see middle photo drawing, right), the architects designed new fixtures that slyly ert a tongue-in-cheek reference to the church's Victorian past into otherwise almost unadorned interior. The lanterns are fabricated reen-painted, laser-cut sheet metal with complex, rather Victori- Gothic cut-outs, and alpha-and-omega finials on top. They are ed with A lamps for uplighting, PAR lamps for downlighting, and dle lamps for sparkle. The architect rejected the proscenium-light- approach, however, and the use of recessed downlights. "It seems ecorous to treat a church as if it is a display window," concludes en. "Liturgically oriented churches are not used as proscenium aters—worshippers walk around in them. When a person takes mmunion, turns around and looks into a battery of stage lights, it s terrible things to their sense of the room. And, if there were ever oom whose ceiling was made to be looked at, it is a church sanctu- But if there are downlights up there, the ceiling goes dark from glare when a person looks up. They can't see it." *Charles Linn*

dits

ist Church
ter Bay, New York
hitect and Lighting Designer: *Gerald Allen and Jeffrey rbinson Architects*
ctrical Engineer: *Hillmann DiBernardo and Associates— ce Castelli, project engineer*



Gerald Allen and Jeffrey Harbinson's new lighting for Christ Church makes a tongue-in-cheek reference to the fact that the austere Gothic Revival church is not what it used to be. The church was once American High Victorian Gothic before being stripped of its trim and covered with stone by Delano and Aldrich in 1925.



1. *Metal trim*
2. *A lamp uplight*
3. *Metal trim*
4. *Reflector*
5. *Electric candelabra*
6. *PAR lamp*
7. *Reflector*

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[illegible] Lighting MFG. company

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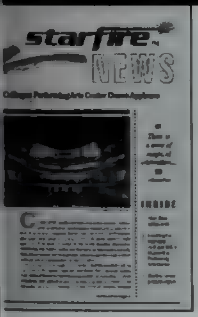
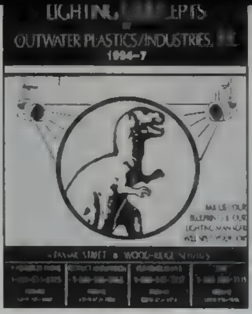
. Arena-scale floodlights
or brochure describes some of
igh-performance, theatrical
acteristics of the new Infranor
II flood, achieved by a motorized
er system that gives instant
f capability to the HID lamps.
lets the fixture function as a
v spot in an otherwise dark area.
85-2141. Sterner Lighting
ems, Inc., Winsted, Minn.

. CFL retrofit floodlight
QCR Omni/Flood, with a new
-designed reflector, is said to
rate superior center-beam light
sity from 13W quad bulbs, deliv-
high fc readings even at 12-ft
ts. The bulb nests within the
running ballast/adapter, bringing
verall length of the retro unit in
with the R40 floods it replaces.
ight, Holland, Mich.



. Architectural fiber optics
nufacturer's newsletter
s an update on innovations and
applications of fiber-optic light-
ystems. The current issue offers
k at why fiber optics work, and
rates the challenges of creating
r Pelli's 2,000-point "chandelier"
inating an 8,000-sq-ft ceiling in
lotte, N.C. 800/443-8823. Starfire
ting, Inc., Jersey City, N.J.



407. Low-voltage accents
A 32-page Lighting Concepts catalog details a new product line for this distributor. Items offered include low-voltage under-cabinet strip lights and adjustable spots; track systems for both low- and line-voltage; customizable cove-lighting systems; an architectural light rail; and picture lights. 800/543-3217. Outwater Plastic Industries, Inc., Wood-Ridge, N.J.

409. Landscape lighting
A 20-page guide illustrates how Luma lighting products achieve diverse nighttime effects, using a step-by-step approach to the techniques, planning, and installation of landscape lighting. Fixture connectors are said to cut labor time; all finish and housing options are shown. 414/886-1900. Ruud Lighting, Racine, Wis.

411. Cast-iron luminaires
A four-page brochure highlights custom-manufacturing capabilities that create posts, standards, bollards, and other site-lighting components in low-maintenance cast iron. High-performance optics are incorporated in any luminaire style; photometric data on IES-format disk. 215/948-4000. Spring City, Spring City, Pa.

Continued on page 40

ore information, circle item numbers on Reader Service Card.

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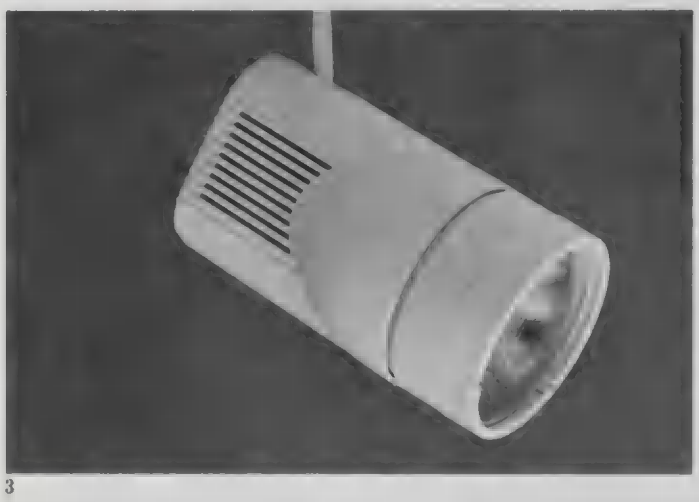


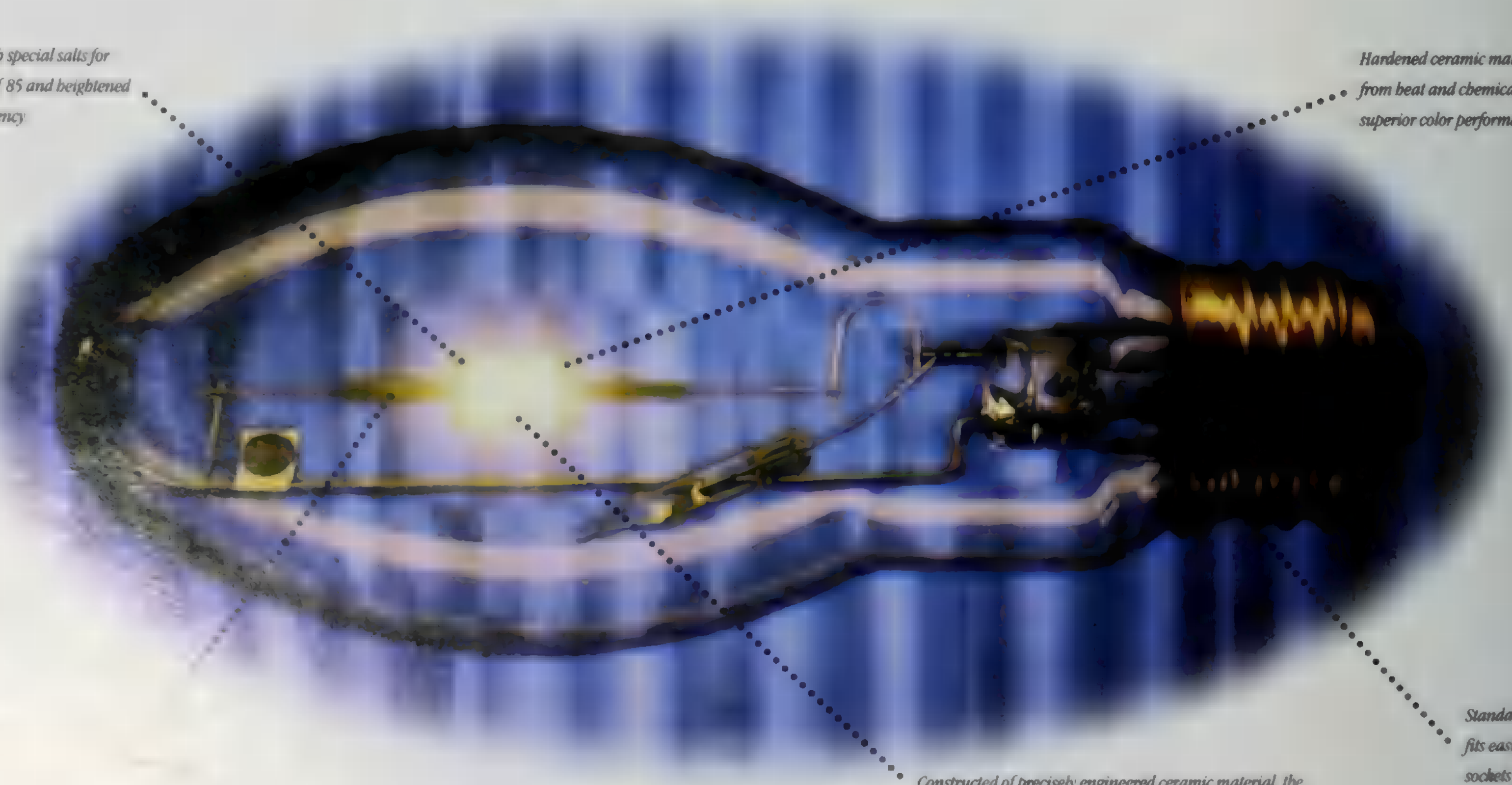
3

4

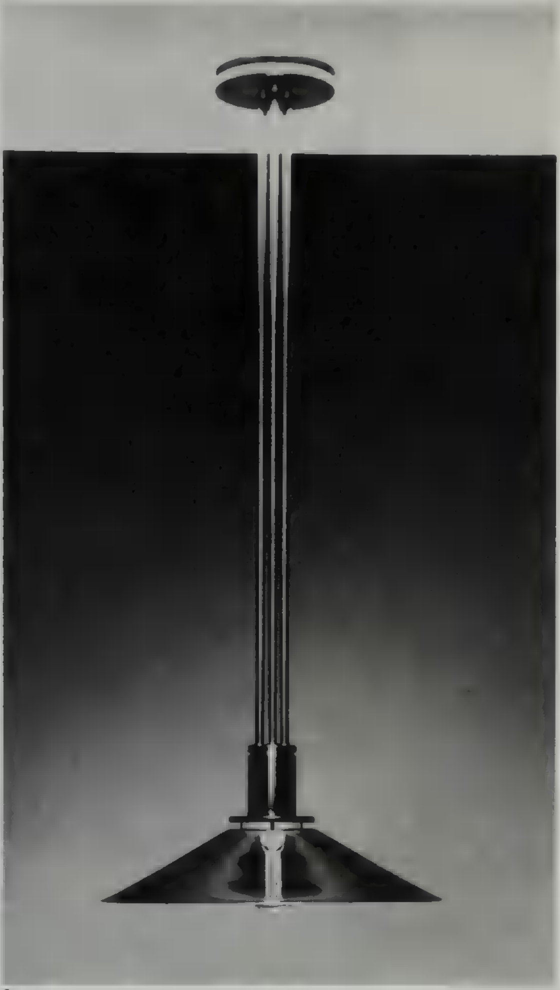
326. In the spotlight.
A collection of brand-new track fixtures fr newly combined Zumtobel Staff Lighting offers luminaires designed specifically for t "newest generation" of low-voltage incand cent, compact fluorescent, and metal-halide lamps. Intended to provide a range of bean control, lamp-temperature, and accessory options for merchandise-display lighting in retail stores, all fixture types can work on Staff's curve-capable track system. Four o the eight new luminaires are shown, left.

For general but still adjustable illuminatio requiring a high CRI, the 1350/1360 (1) has wide light distribution from two 2G 11 or twin-tube T-5s CFL lamps. Fixtures (2) an (4) are low-voltage versions of the low-profi Par Star track line introduced in 1989. They take, respectively, either the AR-111 or AR 70 halogens. Model 8820 (3) is a classic Staf track-head design redone specifically for th efficacious 70W PAR-38. A 64-page catalog includes complete photometric data for all track lights. 914/691-6262. Zumtobel Staff Lighting, Highland, N.Y.

INSTEAD OF TINKERING WITH CURRENT M



Formulated with special salts for improved CRI of 85 and heightened operating efficiency
Hardened ceramic material re from heat and chemical attack superior color performance.
Standard threa fits easily into sockets for a d
Constructed of precisely engineered ceramic material, the arc tube provides outstanding lamp-to-lamp color uniformity.



2

3

327. Brass bound. Rated for both contract and residential use, lamps and pendants designed by Shelton, Mindel & Associates have a lot of brass. Parallel-rod stems, bases, and fittings are made of solid brass a choice of four finishes. The triple-column table lamp (1) stands 27-in. high; its paper shade comes in color combinations to match the metal finish selected. The pendant (2) is similar, with a metal shade. The chandelier (3) has a deep bowl of Spanish alabaster 32 in. across; quartz-halogen or CFL lamping. 914/698-7799. Nessen Lighting, Mamaroneck, N.Y.

Continued on page 42

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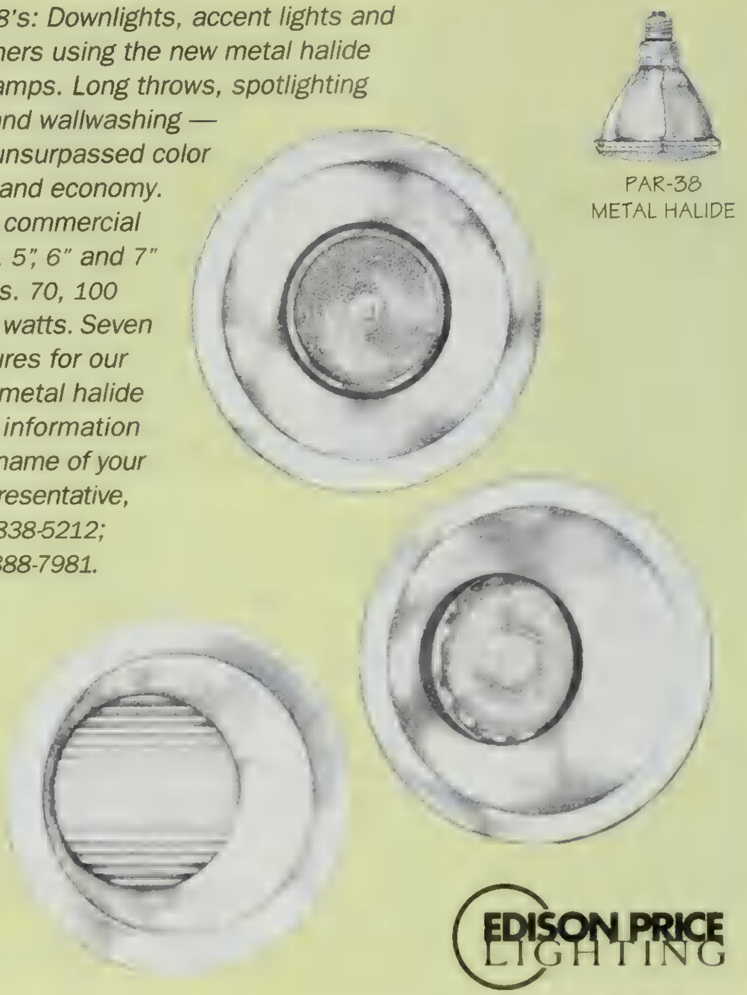

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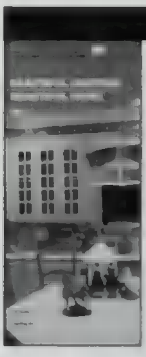
Product Literature/Lighting

412. Ornamental lamp posts
A color brochure explains the advantages of fiberglass-composite lighting poles and ornamental lamp posts. The round tapered designs are said to be more durable, stronger, non-corrosive, non-conductive, and to have lower life-cycle costs than other pole types. 303/287-8053. W. J. Whatley, Inc., Commerce City, Colo.

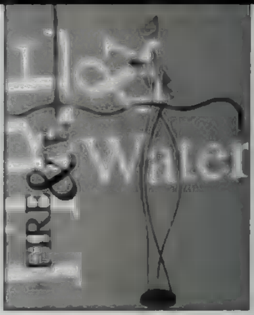
413. Industrial task lights
A line of work lights includes a ne compact-fluorescent fixture that p duces much less uncomfortable he than incandescent sources. Arm ty include rugged steel friction arms that move at the touch of a finger. Lights have applications in machi lighting, assembly, magnification, quality inspection tasks. Dazor Mf Corp., St. Louis, Mo.

414. Period reproductions
A four-page Sweet's catalog introduces authentically detailed brass reproductions of light fixtures, table and floor lamps, chandeliers, pendants, and porch lights from the late 1800s into the '50s. Luminaires are UL listed, and many can be specified for compact-fluorescent sources. 503/231-1900. Rejuvenation Lamp & Fixture, Portland, Ore.

415. Efficient vanity lighting
The PLLF light is a color-correcte 9W CFL placed in a proprietary reflector that directs all light dow wards for even, more comfortable facial illumination. For use with "moderate price" PL bath cabinet the unit meets California Title 24 energy-code requirements. 800/48 2284. PL Bath Products, Bensalem, Pa.



416. Residential downlighting
Beautiful Lighting, Beautiful Home, a 24-page guide, helps homeowners select recessed downlighting. Covers fixture types designed for general illumination, task work, accent, and wall washing, and discusses the esthetics of various trim options such as baffles, eyeballs, lenses, reflectors, and cones. 703/382-6111. Hubbell Lighting, Inc., Christiansburg, Va.

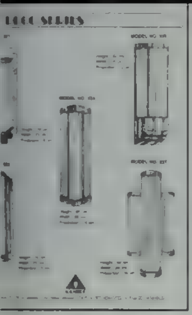


417. Highly styled lighting
Catalog pages illustrate architect David Bergman's newest Fire & I luminaires, still within his copper-tube and metal-mesh vocabulary. Lamps, pendants, candelabras, an torchieres can take dimmable compact-fluorescent sources, as we as MR16s and other incandescent lamps. 212/475-3106. David Bergm Architects, New York City.

For more information, circle item numbers on Reader Service Card.

8. Custom luminaires
x-page color brochure illustrates
ently done custom-design lighting
ures, all on a lobby-size scale.
erials used include white-opal and
ed glass, stainless steel, cast
ss, and crystal, made for projects
n cathedrals to casinos in a range
tyles. Restoration work a special-
00/621-3907. New Metal Crafts,
Chicago.

419. Crystal-bead chandeliers
A foldout poster gives some idea of the illumination effects possible with the Rivendell Collection, lighting that uses motifs of leaves, flowers, and buds interpreted in gilded, hand-wrought metal and hand-strung crystal beads. Line includes chandeliers, sconces, and ceiling designs. 800/836-1892. Schonbek Worldwide Lighting, Plattsburgh, N.Y.



0. Art Deco luminaires
ge-scale sconces of solid brass,
shed nickel, and reme-styled glass
rporate the feeling of Art Deco in
A-compliant designs. A catalog
e supplies dimensions and line
wings for each fixture. Lights can
rdered for fluorescent, halogen,
ncandescent lamping. 201/434-
2. AAMSCO Lighting, Inc.,
sey City, N.J.

421. Residential outdoor lights
A 32-page catalog covers a full line of outdoor lighting products for use around the house, including post lights, by-the-door sconces, spotlights, and decorative pendants. Styles range from modest to extravagant, in finishes such as textured rust, antique brass, and verde. 502/893-4600. Thomas Industries, Inc., Louisville, Ky.

2. Bisque lighting
r 400 designs by Ian Arthur are
vn in a color catalog. The collec-
, made of pottery finished in white
ue, includes wall and ceiling-
nted fixtures, post lamps,
lants, downlights, and bathroom
ting, with decorative edge treat-
ts and show-through cutouts.
939-1388. Fabby, Inc.,
Angeles.

423. Blown-glass designs
Colorful, multilingual catalogs display new lighting by Renato Toso, Noti Massari, and other Italian designers responsible for many Leucos products, such as Vittoria lamps and pendants, many using the firm's hallmark jewel-tone Murano glass. 908/225-0010. Leucos USA, Inc., Edison, N.J.

Continued on page 44

nore information, circle item numbers on Reader Service Card.

LUXO

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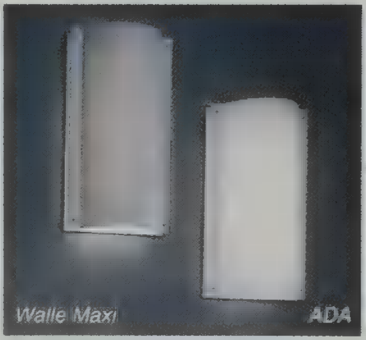
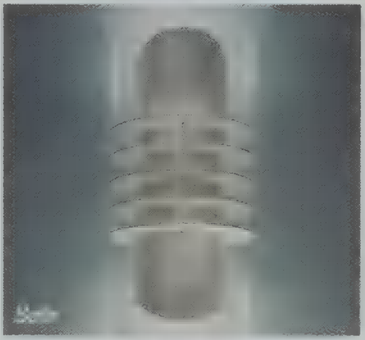
Northern Lights





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328. New-look lantern. Part of a dramatic line of exterior lighting from Germany, Histo 21 blends with traditional-style streetscapes. Luminaire incorporates optics said to reflect any given angle of light from energy-efficient lamps; a frosted diffuser defines the lantern shape. All designs shown in a 26-page catalog. 800/735-8927. Se'lux Corp., Highland, N.Y.

329. White light. VeArt's Arpasia series lights come in models for ceiling, wall, and on-the-floor use, as well as the table/bedside lamp version shown above. Designed by Jean-Marie Valery with an etched-glass diffuser and mahogany stem set into an anodized-aluminum base, lamp is 20 in. high. 516/694-9292. Artemide, Inc., Farmingdale, N.Y.

330. Low-voltage spot. Extending the Sof-Tech line-voltage track system into a miniature size range, Sof-Tech Low Voltage fixtures incorporate a slim, vertically oriente electronic transformer. Silicone band on the lamphead permits comfortable lamp-on aiming. Retail price: $110-$155. 800/223-0726 Lightolier, Inc., Fall River, Mass.

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versions. So useful, you specified them by the row! Problem
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Octron T8 fluorescent and bia
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circuit for late-night, low level

Combine an
snug-plug to

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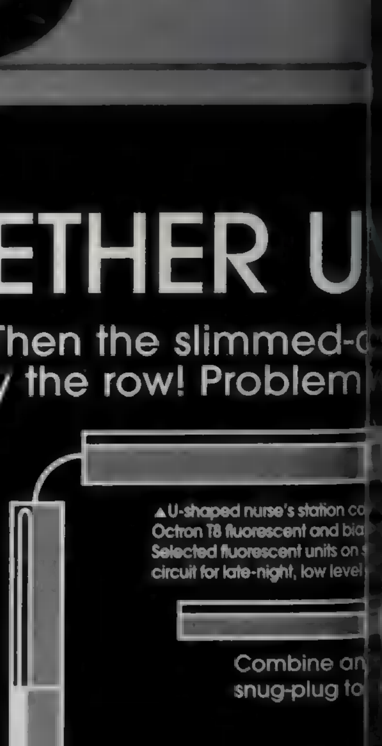

331. Perimeter ambient. A new wall-mount luminaire matches the look of Litecontrol's Classica pendant, with a similar perforation pattern distributing gentle, fixture-defining light. Housing cross-sections are designed for one or two T8 lamps; end-cap profiles may be sculptured, as shown, or flush. An articulated joiner connects individual sections to create longer installations in lobbies, hallways, or offices. 617/294-0100. Litecontrol Corporation, Hanson, Mass.

332. Non-metallic fluorescents. New compact fixtures made without any metal are said to prevent premature ballast failure in wet or corrosive conditions. Vapor-proof integral-ballast lights, for use in the harshest environments such as tunnels and animal-confinement areas, come in 18-, 26-, and 32W CFL versions. 800/743-9148. MiTOR Industries, Mankato, Minn.

333. Landscape lighting. Made of cast aluminum with an impact-resistant glass lens, Aries outdoor lights may be ordered for incandescent or compact-fluorescent lamping. A two-lamp model is shown; a single base-mount and a wall fixture are also available, in matte black or white. 201/882-5010. Amerlux Lighting Systems, Fairfield, N.J.

Continued on page 45

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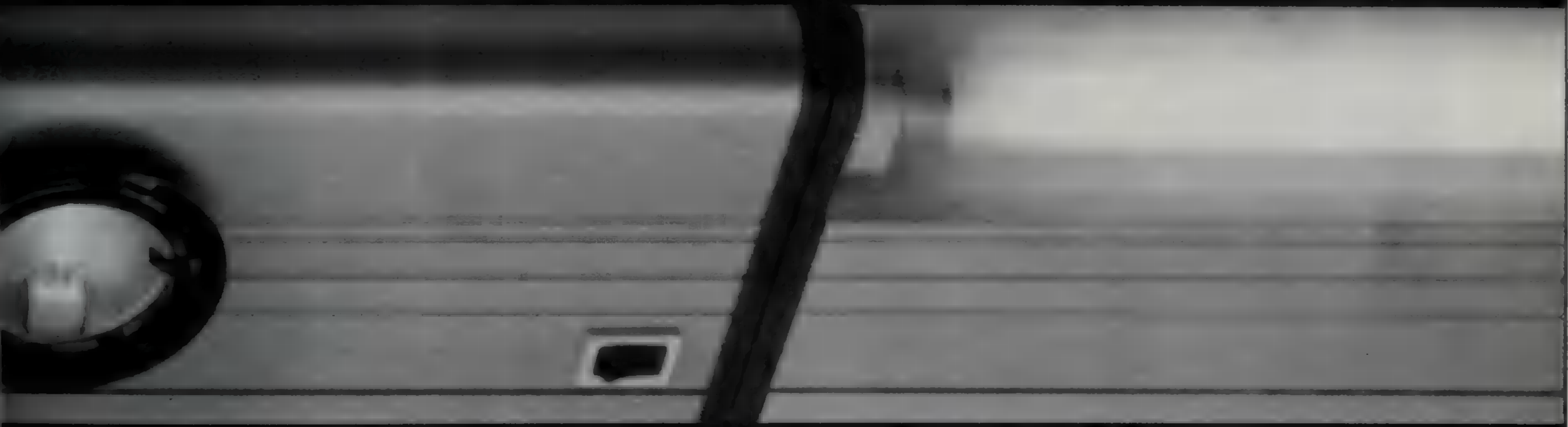

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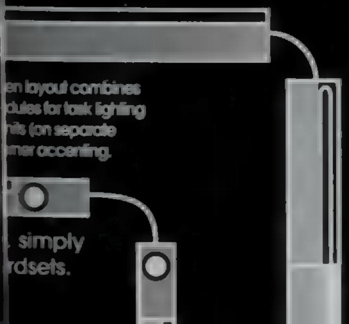

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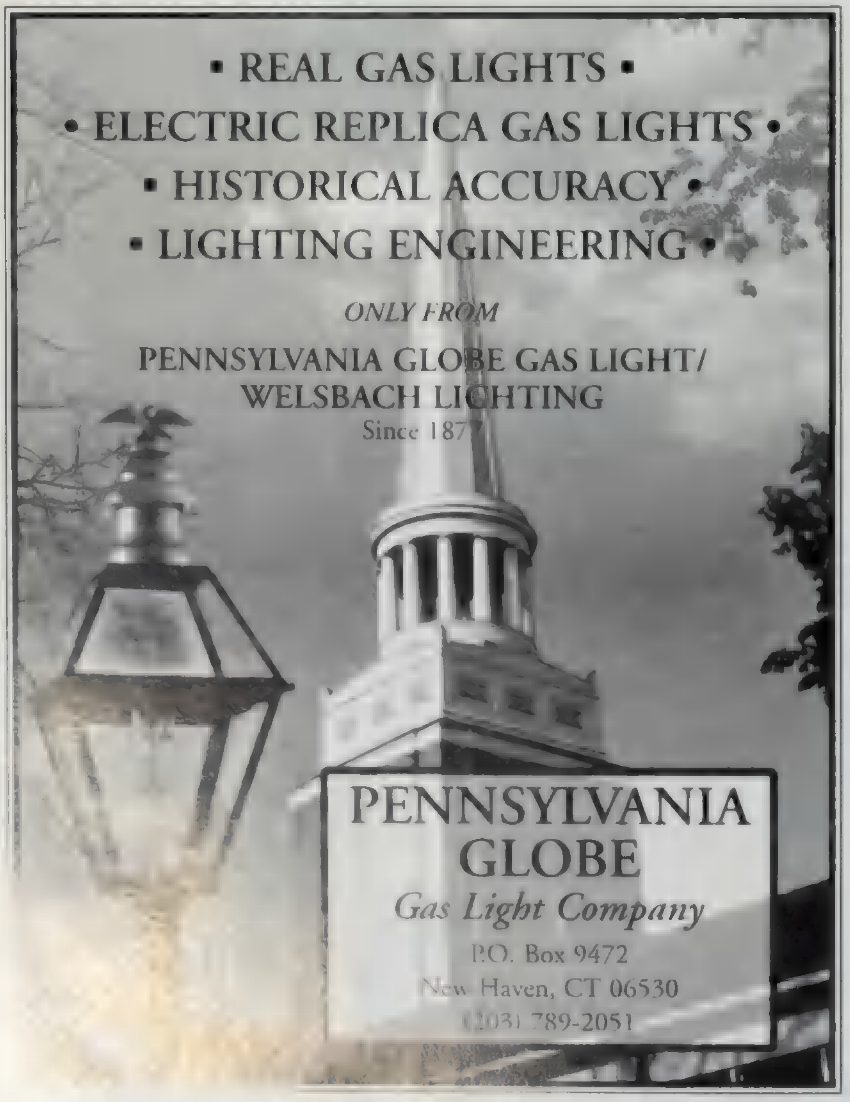

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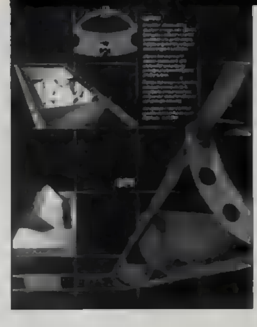


424. Lighting truss system

A brochure describes the basic Lightruss System, a series of indirect light modules with HID lamps evenly spaced on a continuous truss structure. Pre-wired and pre-focused sections are said to be easy to install and particularly suited to the lighting needs of large spaces such as shopping malls and airports. 414/242-1420. SPI Lighting, Mequon, Wis.

425. Tennis-court lighting

The CourtMaster 1000W luminair designed to provide efficient illum tion and beam control for club, recreational, and tournament-leve playing conditions. A rotatable ret tor is said to eliminate unwanted s light. A color brochure supplies ph tometrics, and lays out fixtures for types of tennis-court setups. Lum Lighting, Vicksburg, Miss.

426. Recessed downlighting

A 34-page catalog covers all Lite Box products, including new high-wattage fixtures for insulated ceilings, downlights and trims for sloped ceilings, and housings designed to take advantage of efficient compact-fluorescent lamps. Illustrates fixtures with color photographs and detail drawings; photometrics given. 510/562-3500. Prescolite, San Leandro, Calif.

427. Step, rail, and cove

A 12-page brochure demonstrates interior and exterior applications this low-voltage system, which car provide 5-, 10, or 25 fc of continuou uninterrupted light from a concea source in single lengths of up to 2 Lamp life is said to be over 50 yea can be ordered in 12- or 24-volt systems. 800/654-8268. Roberts St Lite Systems, Oklahoma City, Okl.

428. Parking and area lighting

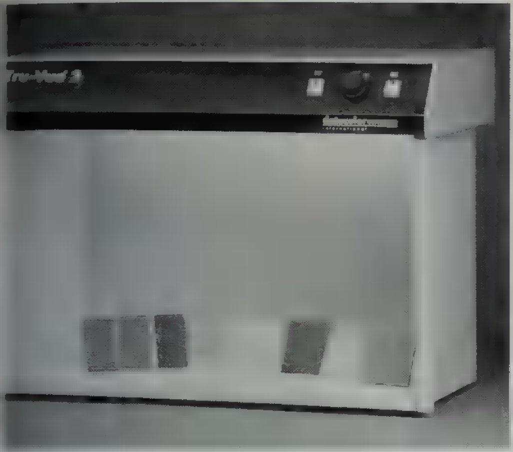
Individual eight-page catalogs describe the ParkLane and Crestwood area-lighting luminaires, and supply photometric data, construction diagrams, performance specifications, finish and mounting options, and ordering instructions for each design. 614/349-4116. Holophane Corp., Newark, Ohio.

429. Ballast Guide

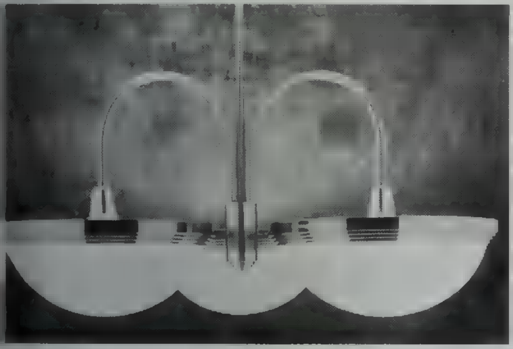
A new *Specifications Guide for Energy Engineered Ballasts* gives performance data for both Triad e tronic ballasts and Universal elect magnetic ballasts. Data such as to harmonic distortion, minimum sta ing temperatures, and sound ratin are matched to ballasts. 615/316-5 MagneTek, Inc., Nashville, Tenn.

Continued on page 48

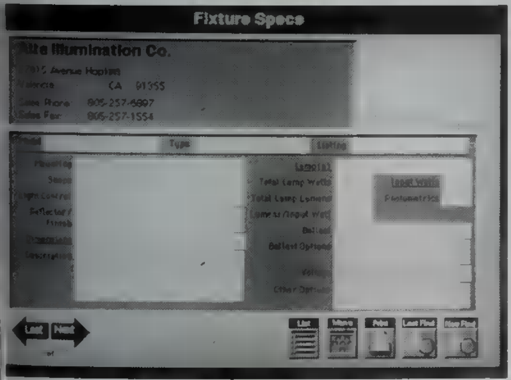
For more information, circle item numbers on Reader Service Card.



4. Color assessment. The Tru-Vue 2 inet is described as a lightweight (29 lbs), -cost tabletop unit that can simulate on-site ting conditions to evaluate the color of ics, paints, laminates, and other materials. nes with four light sources; meets ASTM D 9-89 for critical viewing. 609/924-2189. acolor International, Lawrenceville, N.J.



5. Fluorescent option. Lam's Imperial ies pendants, sconces, and cluster fixtures tured) can now be specified for biaxial L sources in place of HID lamps. The iber and placement of the CFL sources mits diffused downlighting as well as rect uplight illumination. 800/732-5213. n Lighting Systems, Santa Ana, Calif.



Fixture Specs

ite Illumination Co.

Avenue Hopkins

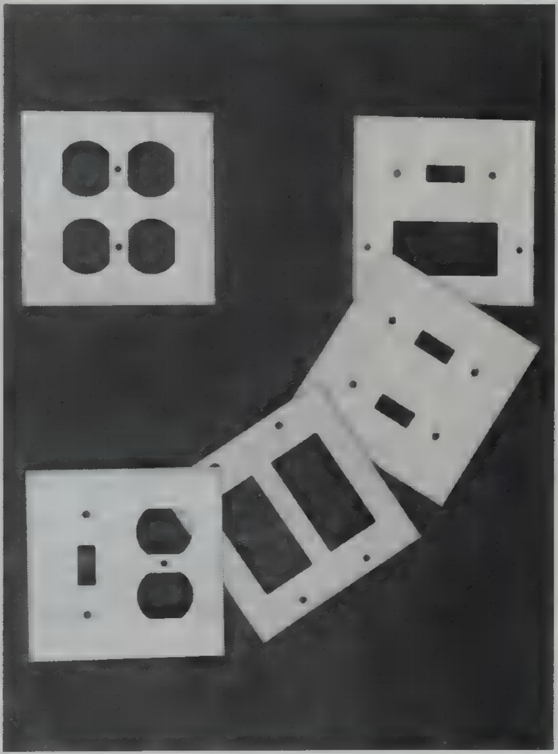
alencia CA 91355

Sales Phone 805-257-6897

Sales Fax 805-257-1554

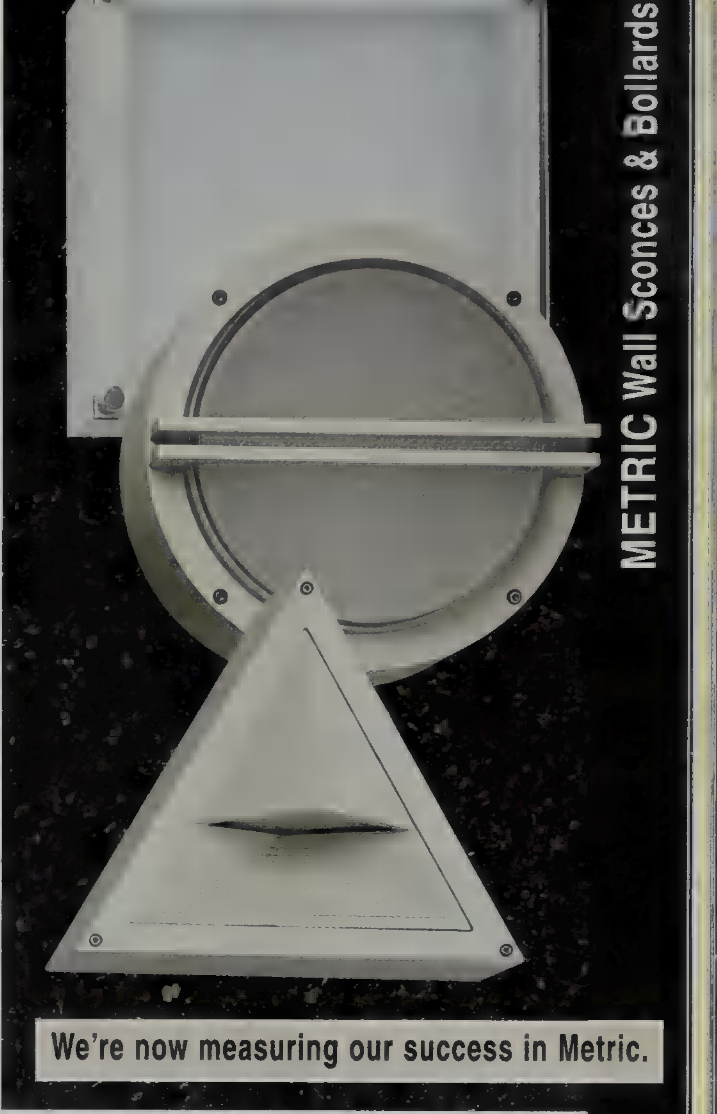
6. Fluorescent guide. The CFL ectory is said to be a comprehensive source nformation on compact-fluorescent lighting lucts. Windows/Mac disks hold over 8,000 part standardized descriptions of fixtures, ps, and retrofit kits. 800/346-0104. Iris nmunications, Eugene, Ore.

337. No-flicker task. The Barcelona E is the newest version of Waldmann's parabolic-louver light, with an instant-on electronic ballast incorporated in the lamp head. Fixture takes two 9W PLs. Several articulating-arm styles; mounting options include a universal bracket for panel systems. 800/634-0007. Waldmann Lighting Co., Wheeling, Ill.



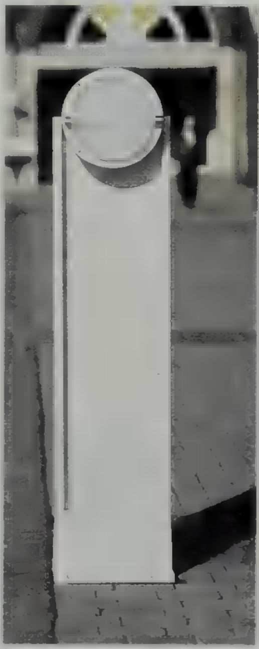
338. Real-wood coverplates. Decorative switchplates made of oak, ash, maple, or cherry come sanded and ready to finish. Sized to NEC dimensions, plates are said to fit neatly to the device; over 60 styles offered. 303/232-8909. A Better Coverplate, Denver.

Continued on page 46



We're now measuring our success in Metric.

Ludenscheid, Germany is a lot like Winsted, Minnesota. That's because Ludenscheid is home to Hoffmeister-Leuchten. And Winsted, to Sterner. And both companies make equally brilliant lighting solutions. So it's no wonder both companies are working together to introduce lighting like the Metric Series - stunning, contemporary fixtures with a variety of lamping options. They're what we'd call "different" here in Winsted. Which may be exactly what you're looking for, if you're looking for reliable, high-performance, UL-listed luminaires featuring true European design sensibilities. With Sterner and Hoffmeister, nothing is lost in the translation.



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HOFFMEISTER

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339. Multipurpose patient light. The Clairance light combines fluorescent and incandescent for up to four lighting functions. Ambient and reading functions can be controlled by the patient from the bed; the examination light and a nurses' night light are controlled by staff at a wall switch. 800/833-3321. Medaes Systems, Norcross, Georgia.

340. Fluorescent wall washer. This fluorescent wall washer is only 5-in. wide. It's specifically designed to place a strong, even, vertical beam of light on the face of a wall, from a point much closer than would be possible with a conventional wall washer. Very effective for display work. Engineered Lighting Products, El Monte, Calif.

341. Extended track heads. W.A.C. manufactures extension rods of 18-, 24-, 36- and 48-in. lengths that attach to their low-voltage track heads. Track heads may be se onto two- or three-wire track mounted on h ceilings or other difficult-to-reach areas. Available in black or white. 800/526-2588. W.A.C. Lighting, College Point, N.Y.

con-tech

A [illegible] combination of [illegible] for perimeter lighting.

wall/liter™ is the ideal fluorescent floodlight for perimeter and accent lighting in retail and commercial applications. Its unique design utilizes twin Biax® lamps mounted at opposite ends, creating an overlapping configuration for exceptionally smooth, even wall wash illumination.

A high output specular reflector and parabolic louver provide high efficiency performance and glare free lamp shielding. An electronic ballast provides greater energy efficiency.

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American Lighting Association

Green Lights

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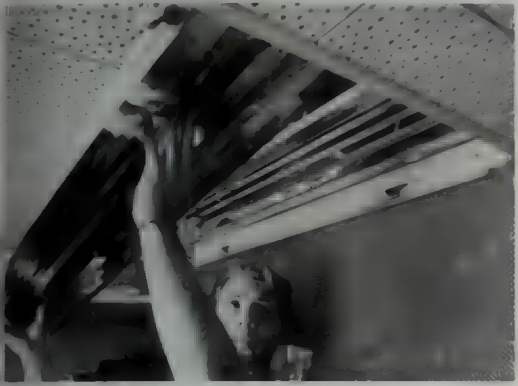
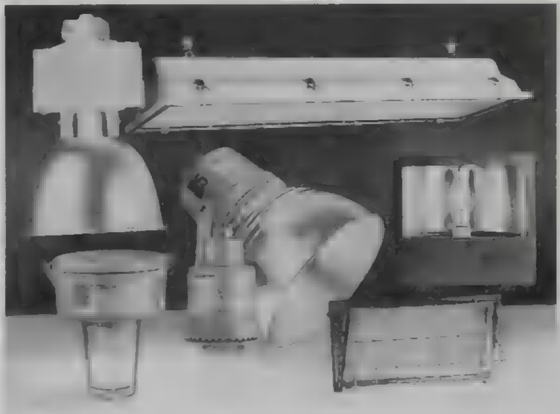


2. Silver-film laminate. Specular+, a -listed sputter-coated film, is described as cient at directing and focusing light output. ien used as reflectors in new or retrofitted orescent fixtures, the laminate can reduce number of lamps and ballasts needed to intain original light levels. PreFinish tals, Inc., Elk Grove Village, Ill.

3. LED exits. The Precise exit line now ludes models with LED illumination, said ast over 25 years while drawing only 1.5 tts. Both LED and standard 8W orescent exits come in line-voltage and ergency versions. Lithonia Lighting, nyers, Ga.

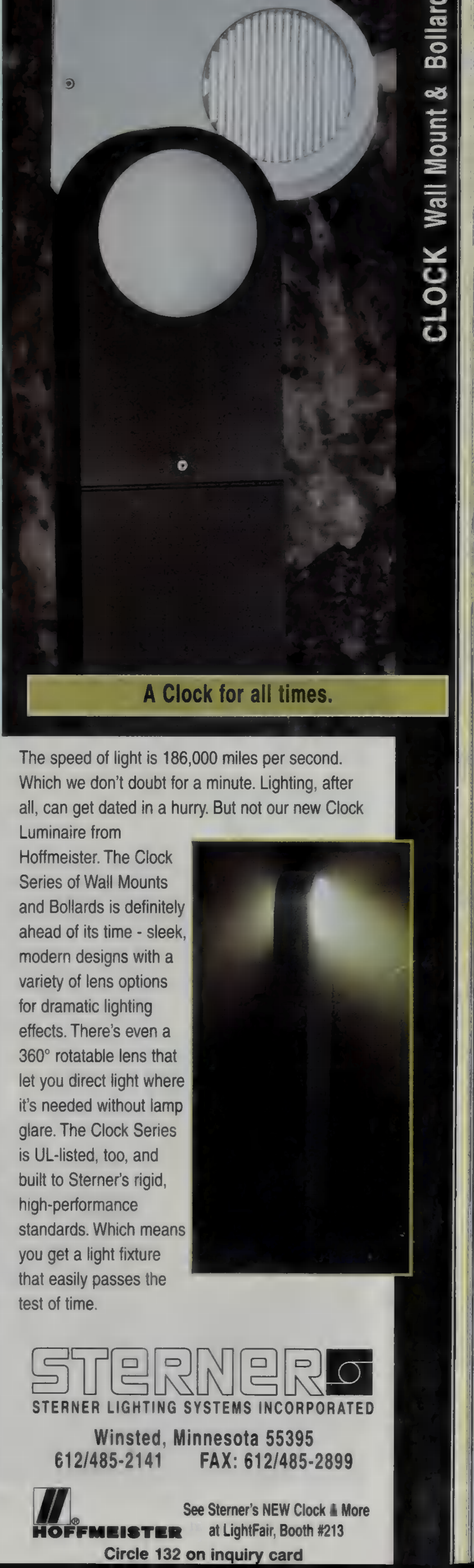
4. Edge-lit exit. Sterling exits are scribed as ideal for upscale interiors such as porate offices, restaurants, and hotels. ailable with red or green LED illumination recessed or surface mounting. Options lude special wording or graphics. Chloride stems, Burgaw, N.C.

345. Low-profile area lights. Constellation series luminaires come in metal-halide (with a drop glass lens) and flat-lensed high-pressure-sodium versions to illuminate parking lots, entry drives, and walkways. Its low-profile design is said to greatly reduce wind resistance, to a .71 EPA level, while reflecting a look of 21st century design. A two-position latch system permits tool-less re-lamping. McGraw-Edison, Vicksburg, Miss.



346. Rugged lighting. Mercmaster fixtures, made with all-stainless-steel construction, are said to offer outstanding corrosion resistance in harsh environments. Photometrics and other data available on diskette. Appleton Electric Co., Chicago.

Continued on page 50



The speed of light is 186,000 miles per second. Which we don't doubt for a minute. Lighting, after all, can get dated in a hurry. But not our new Clock Luminaire from Hoffmeister. The Clock Series of Wall Mounts and Bollards is definitely ahead of its time - sleek, modern designs with a variety of lens options for dramatic lighting effects. There's even a 360° rotatable lens that let you direct light where it's needed without lamp glare. The Clock Series is UL-listed, too, and built to Sterner's rigid, high-performance standards. Which means you get a light fixture that easily passes the test of time.

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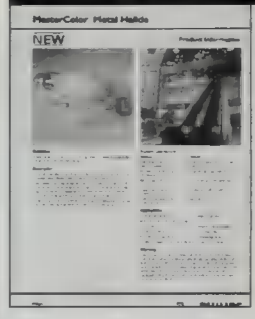
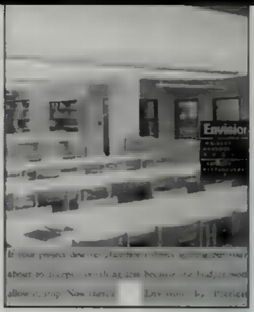
Product Literature/Lighting

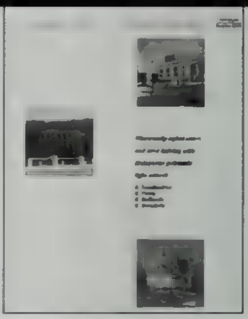


430. Consistent-color halide
Product-data sheets give lamp-performance and other data on new MasterColor metal-halide lamps, said to offer uniquely consistent color control and excellent (80 CRI) color-rendering ability compared to other low-wattage halide sources. Offered in ED17, 35W PAR 30s, and 35- and 70W T6s. 908/563-3039. Philips Lighting Co., Somerset, N.J.



431. Glare-free optics
A brochure on the Envision system illustrates how the extruded-aluminum sections connect and turn corners; cutaway views detail lamping options for the rounded an rectangular shapes offered. Color photos convey a sense of system pe formance in office and industrial environments. 510/845-2760. Peerle Lighting Corp., Berkeley, Calif.

432. Aluminum light poles
A 38-page color catalog gives an overview of all Sternberg "Vintage Lighting" pole and luminaire designs, using detail drawings and installation photos of sites from Chicago to Disney World. Styles are primarily traditional, with a wide range of pole, fixture, and lens options. Lamping and ordering information. 312/478-4777. Sternberg, Chicago.



433. Area-lighting standards
A 20-page Unique Solutions catalog shows post-top luminaires and bollards in residential, school, retail, a public-space settings. Posts can be made in cast iron, cast aluminum, concrete, fiberglass-reinforced poly ester, and a combination of cast-iro base and a steel shaft. 614/349-4194 Holophane Co., Inc., Unique Solutions Div., Newark, Ohio.

434. Residential lighting control
HomeWorks is described as a stylish, state-of-the-art integrated lighting system that allows users to recall preset lighting levels at the touch of a button. Status indicators show which lights are on; panels can work with other maker's keypads for media, security, and hvac devices, eliminating "switch clutter." 610/282-3800. Lutron, Coopersburg, Pa.

435. Custom lenses and louver
A.L.P.'s 20-page catalog describes a range of louvered fixtures and othe lighting components, including wra around lenses, Kwik Change retrofi louvers, and all types of parabolic louvers. Finish options, blade profil photometric data, and dimensions a listed. 800/633-7732. A.L.P. Lighting & Ceiling Products, Chicago. ■

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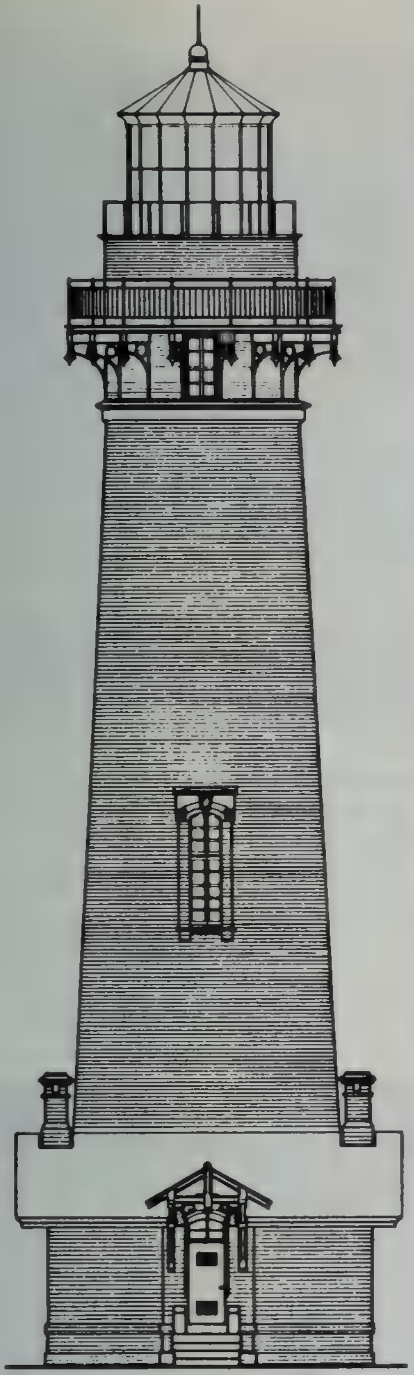
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Manufacturer Sources

For your convenience in locating lighting fixtures and other products shown in feature articles, record has asked the architects and lighting designers to identify their sources.

Pages 24-27

Ahmanson Theater Reconfiguration,
Los Angeles
Ellerbe Becket, Architect
Horton•Lees Lighting Design
Lobby downlighting: Lightolier, Inc. (quartz ellipsoidal). Lobby cove lighting and theater downlights: Lightolier, Inc. (PAR38 track with spread lens). Custom lobby fixtures: C.W. Cole & Co. Ceiling uplights: General Electric (Dichroic blue MR16 lamp, porcelain socket). Sconces at box seats: LSI (PAR20 Spacebird). Lighting controls: Strand Century. Exterior downlighting: CSL. Canopy uplights: Elliptipar, Inc. In-grade uplights: Hydrel.

Pages 28-29

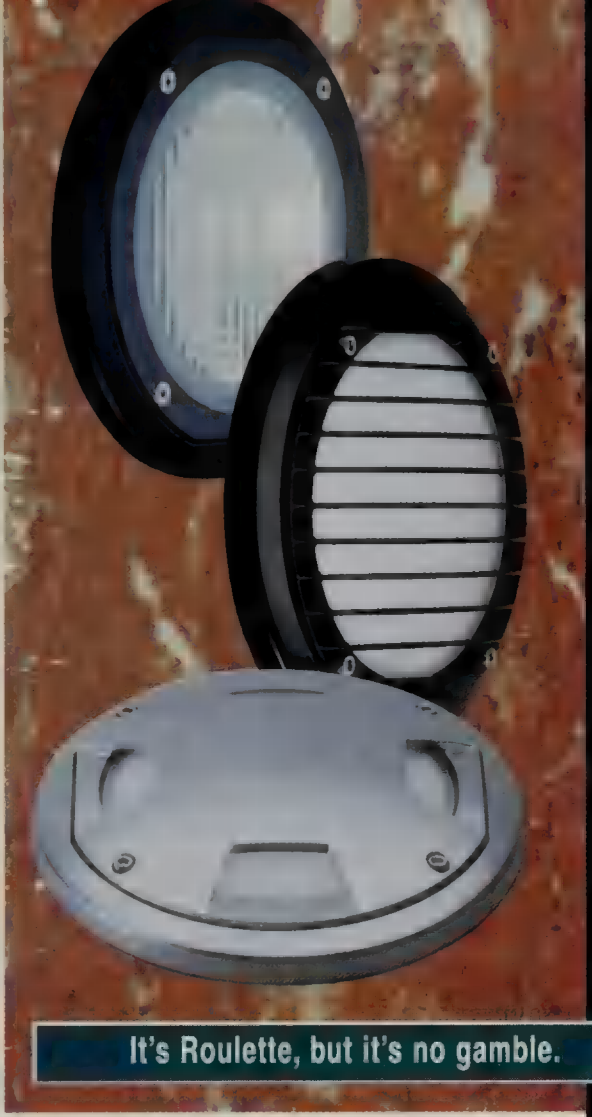
Joslyn Art Museum Addition,
Omaha, Nebraska
Sir Norman Foster and Partners;
Henningson Durham Richardson, Architect
Claude R. Engle Lighting Design
Architectural lighting fixtures and gallery lighting: Edison Price, Inc.

Pages 30-33

Prudential Center Retail Arcades, Boston
Sykes Jennings Kelly & Brewer, Architect
Communication Arts, Designers
Ripman Lighting Consultants,
Lighting Designers
Custom-design standards: Winona Lighting. Cove fixtures: Kurt Versen. Downlighting: Lightolier, Inc.; Omega; Elliptipar, Inc. Other fixtures: Sterner Lighting Systems, Inc.; Kirlin. Exterior lighting: Hydrel; McPhilbin; Sterner Lighting Systems, Inc.; Stonco. Sources: General Electric (F26 CFLs; Q250 PAR38/FL, 50 PAR30, and other incandescents). Philips: SDW-100W/LV/D coated ED17 (White SON).

Pages 34-35

Christ Church, Oyster Bay, New York
Gerald Allen & Jeffrey Harbinson, Architects, P.C.;
Sconces; chandeliers at nave and narthex: Michael's Lighting, Winona, Minn. Lighting control system: Lutron Electronics Co.


It's Roulette, but it's no gamble.
ROULETETE Step & Marker Ligh

After thirty-some years in the lighting business, we know a good bet when we see one. Like the Roulette from Hoffmeister, for example. It puts light exactly where you want it without any lamp glare. And the way we see it here at Sterner, that's important when it comes to step and marker lighting. So we took the Roulette Series and gave it the reliable, UL-listed performance we're famous for. The result is lighting that not only looks better, it helps you see better. Which should make it a favorite for interior, exterior and landscaping uses alike. We'd stake our reputation on it.

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More at LightFair, Booth #213

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347. PAR38 replacement kit. The Quicklite is a UL-listed, socketless compact-fluorescent retrofit for 6- and 8-in. recessed downlights, replacing the banned-after summer 75- and 150W incandescents. The reflector is said to maximize light output and distribution; includes a high-power-factor electronic ballast. Available in wattages from 10W to 32W. 813/288-0334. Lighten Up Products, Tampa, Fla.

348. Lighting control system. The Impressions line of wiring devices now offers a microprocessor-based lighting control system that permits preset dimming and switching of scenes for up to 256 lighting loads, to be programmed by the installer. Matches look of other devices. 800/223-4185. Pass & Seymour/ Legrand, Syracuse, N.Y.

349. Large-area occupancy sensor. At cost basis of 8 cents per kilowatt hour, the H 3600 is said to pay for itself in savings within year of installation. A square coverage lens was designed to eliminate dead spots in corners; five dual-element sensors improve response sensitivity. 616/925-2896. Heath Commercial, Benton Harbor, Mich. ■

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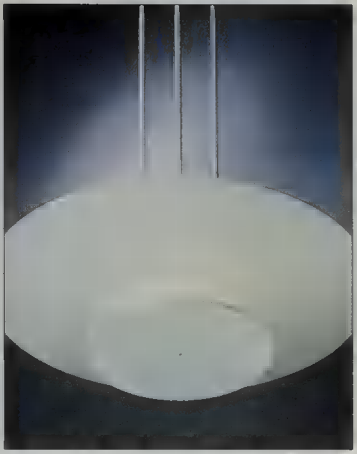

Luxo introduces the Urania, a pendant mounted ceiling luminaire from the Borens line. Urania's fluorescent lamps are set in a spun round housing with a flat disk placed 2" below the shade to illuminate the underside of the shade.

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Fiberescent™ Large Core plastic optical fiber introduced by Lumenyte International Corporation rivals the brightness of fluorescent products without the associated disadvantages. Fiberescent™ emits an extremely bright directional beam of light. It will be available in lengths up to 15 feet.

Lumenyte International

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MARINER III Series

Eclipse Lighting, Inc. introduces the MARINER III Series. A decorative, durable and energy efficient solution for compliance with the new ADA standards. Featuring three attractive sizes for indoor or outdoor use. Lamp sources include Incandescent, PL and HID. Also available in tamper-resistant models. Custom inquiries welcome. For complete information: Eclipse Lighting, 1259 Wood St., Chicago, IL 60622. Tel: 312/862-0802; Fax: 312/862-1138.

Eclipse Lighting

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Luminous Pendant Luminaire

Luminous faux alabaster or uniform color diffusers both transmit and reflect light. Elements blend with ceiling for low contrast view. **LUNOS** model delivers 20% uplight, 80% downlight. Other distributions, shapes and colors available. 2 or 4 lamp 40 watt twin tube fluorescent. Single units or continuous row. Matching wall sconces. 814-943-1155.

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Vittoria

Elegant wall sconce providing upward, downward and diffused illumination through its handblown glass diffuser. Chrome-plated structure mounts to a standard junction box. 1 x 200 watt, quartz-halogen, recessed single contact (provided). Five satin glass colors; white, red, cobalt blue, amber, Nile green. Companion pendant, table and floor lamps also available. For complete **Vittoria** catalog, call (800) 832-3360 or fax: (908) 225-0250.

Leucos USA, Inc.

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Lexington Aluminum Lighting Standards

Cost-effective, durable, attractive, & strong describe Lexington Standard Corp's aluminum lighting standards. Available models include round tapered/straight/decorative, square straight, hinged, & embedded. The wide range of finishes & colors appeals to architects; contractors appreciate the ease of installation; distributors are attracted to the economical prices; owners enjoy a product that's virtually maintenance-free.

Lexington Standard Corp.

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Hydrel'S 7100 Series Architectural Lighting System provides high performance with maximum uniformity and control. Eight standard light distributions. Standard internal glare control. Multiple mounting capabilities. Contemporary styling to complement any architectural statement. Up to 175 watts HID.

Hydrel

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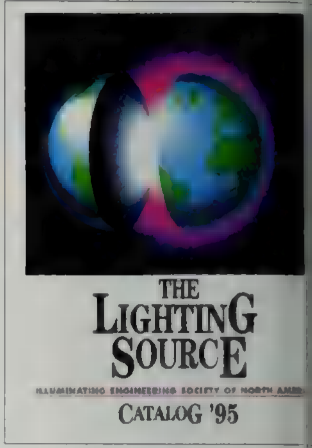
Optical Projector for Large Spread, Range & Brightness

When your lighting requires wide spreads or long throws, specify Wendelighting's Model 2346-50, Optical Contour Framing Projector. Perfect for large paintings, sculptures, focal points and landscaping, it can light the exact contour of objects including logos. This UL model utilizes a bright 400 watt halogen light and a precision, five-lens system. Its gobo (template) is produced with an internal photographic imaging process. Recessed or track models make it versatile for residential, institutional and commercial uses.

Wendelighting

Circle 144 on Inquiry card

IESNA Catalog Available



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Illuminating Engineering Socie

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Meier's lighting fixture designs for Baldinger embody the same timeless simplicity of line, purity of form and function as the whole of his work.

New Ceiling Fixture

Joseph Double Pendant

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CON-TECH introduces new high-lumen output fluorescent luminaires for exceptionally smooth, even wall wash illumination. Ideal for perimeter & accent lighting in retail & commercial settings. WALL/LITER™ features two Biax® lamps mounted in a unique overlapping configuration, a highly efficient specular reflector & parabolic louver & an energy-efficient electronic ballast with low THD (Total Harmonic Distortion). Track or fixed monopoint-mounted, the WALL/LITER™ may replace multiple track fixtures. Available in twin 18, 27, 39 & 40 watt models, white or black finish. FEATURED at CON-TECH lighting BOOTH No. 517, LIGHTFAIR Chicago, June 7-9, 1995.

CON-TECH

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Shallow Dome Pendant

Shallow Dome Pendant
36" Dia. x 6" h (body) x 36" oah
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Polish stainless steel stems
Opal acrylic dome
(4) 13w compact fluorescent.

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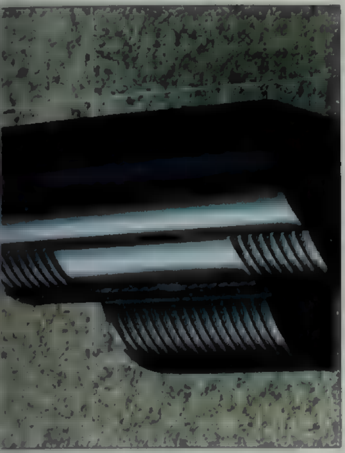
Wall Director™



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KIM LIGHTING

Circle 150 on Inquiry card

Compact Fluorescent Downlight

Edison Price Lighting's Lenslux® SM is a surface-mounted compact fluorescent downlight for offices, lobbies, corridors, rest rooms and public areas. The simple lines and low profile of the fixture is compatible with any decor. The downlight also comes in a vandal-resistant style, Lenslux® SM-VR, designed with a lens extruded in impact-resistant acrylic and tamper-proof screws which secure the housing.

Edison Price Lighting

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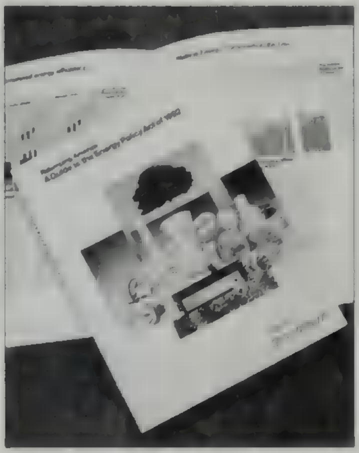
Relamping America: A Guide to the Energy Policy Act



This comprehensive, easy-to-understand guide from OSRAM SYLVANIA explains how the energy-saving strategies adopted by Congress with 1992's EPACT affects lamp availability by prohibiting certain standard T12s & many incandescent reflector lamps, & describes strategies for compliance that use more efficient lighting technologies. The brochure includes EPACT at a glance - substitution options, a reference guide for general service lamps, & short case studies on implementation problems. Stresses the money-saving advantages of "maximum" compliance. OSRAM SYLVANIA INC., 100 Endicott St., Danvers, MA 01923. 800-LIGHT-BULB.

OSRAM SYLVANIA, Inc.

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Nautical Bollard

The Nautical Bollard series from AAL is available in 36 configurations. Fresnel or opal acrylic lenses are offered. The top of the luminaire is solid aluminum or a luminous glass dome that emits a soft uplight. The bollard shafts can be specified in aluminum or cast concrete. HID and PL lamp options. Architectural Area Lighting, fax 714 994-0522.

Architectural Area Lighting

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Consistent Color That Won't Change It's Stripes

Dramatically touting MasterColor Metal Halide's "consistent color that won't change it's stripes," this exciting new brochure discusses the ED-17 clear & uncoated versions both as an ideal inexpensive upgrade for current metal halide installations & for commercial downlighting applications. It presents MasterColor's features, benefits, & advantages over standard metal halide lamps & application suggestions. To order, call Philips Lighting Co. at (800) 631-1259. **Opening The World's Eyes to Light.™**

Philips Lighting Co.

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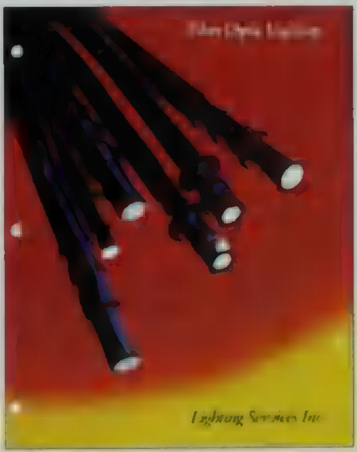
LIGHTING SERVICES INC INTRODUCES NEW FIBER OPTIC SYSTEM



Lighting Services Inc has introduced a new fiber optic system comprised of a remote light source (illuminator), "tails" or bundles of light carrying glass optical fibers (harness), and lighting instruments (lightbars and fixtures). Please contact Lighting Services Inc for a full color fiber optic lighting brochure. Public Relations, Lighting Services Inc Stony Point Industrial Park, 2 Kay-Fries Dr., Stony Point, NY 10980 (914) 942-2800.

Lighting Services Inc

Circle 155 on Inquiry card

Wall Sconces

Phaces from SPI Lighting is a series of low-profile ADA-compliant wall sconces. Housing styles include scoops, quarterspheres, triangles, arcs and wedges. Metal, acrylic and alabaster Phaces can be accented with brass, chrome, aluminum, acrylic or a combination of trim elements. Phaces incorporates the most advanced lamp and ballast technology available; halogen, metal halide or fluorescent lamping is offered with electronic ballasting. For more information contact SPI Lighting Inc., 10400 N. Enterprise Dr., Mequon, WI 53092. Phone: (414) 242-1420. Fax (414) 242-6414.

SPI Lighting, Inc.

Circle 156 on Inquiry card

GENESYS Lighting Workstation

Our project management system lets you boost productivity and creativity with a graphical method of designing and evaluating lighting *before* installation. Version 3.0 incorporates Lawrence Berkeley Laboratories powerful ray tracing program RADIANCE. To learn more about GENESYS, stop by Booth 410 at Lightfair or call 1-508-679-8131 Ext. 4200.

Lightolier ®

Circle 157 on Inquiry card

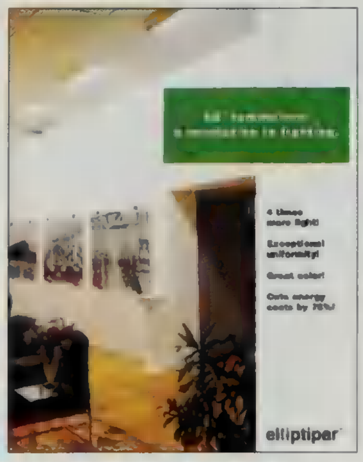
Wall Classica

Litecontrol introduces Wall Classica, an exciting addition to the innovative, high-performance Classica family. Wall Classica's gently lighted perforated lamp sections create an elegant, sleek appearance. Its optical system ensures high efficiency and low luminances on the wall above the fixture. The endcap is available either flush or sculptured. Wall Classica's graceful shape is an excellent choice for offices, lobbies, hallways, and other spaces requiring a high-design lighting system.

Litecontrol

Circle 158 on Inquiry card

elliptipar launches revolution in lighting



Brochure graphically illustrates how **elliptipar's** new line of 4X™ luminaires revolutionizes wall washing, ceiling and indirect lighting. The innovative 4X line delivers *four times more light* than ordinary T8 fixtures and up to *76% in energy cost savings* over incandescents. The secret lies in the positioning of two long twin-tube compact fluorescent lamps in the optical center of **elliptipar's** unique asymmetric reflector. **elliptipar, inc.**, 114 Orange Ave., West Haven, CT 06516.

elliptipar, inc.

Circle 159 on Inquiry card

Scene Select Scene Dimming Controls from Leviton Provide Outstanding Versatility

Leviton's Scene Select scene dimming controls allow the creation of distinct lighting scenes, combining with multi-point control, using virtually any light source. Units are installed in standard wall-boxes using conventional wiring methods and materials. Lighting effects can be programmed to match task and mood lighting requirements in a wide variety of commercial, institutional or residential applications.

Leviton

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New CP3206, 3250 & 3300 Series Pendant

Visa Lighting introduces **cone biax pendant** (show and **shallow bowl b pendant** - available w three, six, and nine 39 w lampings with high-e ciency optics. **Cylindri** pendants round out t new offering; provid pleasant ambient light v a separately wired, op cally-controlled downlig Look for other innovation Visa's lines as Lightf approaches.

Visa Lighting

Circle 161 on Inquiry card

November 17-20, 1995
LDI 95
Miami Beach

Lighting Dimensions International offers a two-day intensive on architectural dimming & three additional days of **Light in Architecture** workshops for a [illegible] of different applications [illegible] & cruise ship-based casinos to airports & municipal lighting. LDI95 is a great place to get some hands-on training &, with over [illegible] sq ft of exhibit space, see the latest products in [illegible]. For more information contact [illegible] 32 West [illegible] or call [illegible]

Lighting Dimensions International

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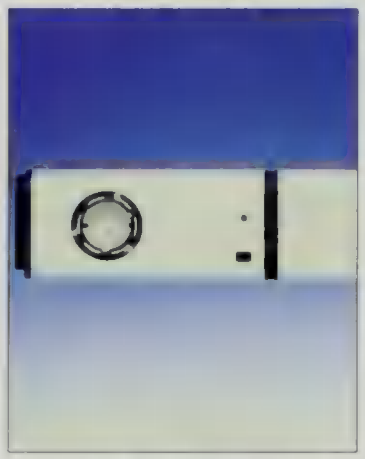
PASS & SEYMOUR/LEGRAND®'S OCCUPANCY SENSOR HELPS SAVE ON LIGHTING COSTS

Pass & Seymour/Legrand®'s new Switchplan® OSC3020 occupancy sensor reduces operating costs by conserving energy otherwise wasted on lighting empty space. The OSC3020 is a motion-detecting unit with a positive detection indicator that covers up to [illegible] sq ft through a 180° viewing lens. Its adjustable time-out delay allows up to 15 minutes elapsed time before turning lights off. Extending [illegible] than an inch from the wall after installation, the OSC3020 combines a low profile with contemporary styling in three colors. For more information call Pass & Seymour/Legrand toll-free 1-800-776-4035.

Pass & Seymour/Legrand

Circle 163 on Inquiry card

LINCS from Alkco



A paradigm shift in under cabinet lighting. Aluminum extruded T5 and %8 fluorescent and halogen fixtures that plug together. This eliminates the need to hard wire from fixture to fixture. LINCS provides the specifier and contractor with the most elegant product at the lowest purchased and installed price.

Alkco

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Exterior/Interior Luminaire

Scoop, an exterior/inte luminaire of distinctio designed for surface mou recessed or post mount applications. Spec features include an asy metric reflector with computer designed opti assembly for glare cont Light sources: Halogen o HID. UL Listed. IBEW mad

Reggiani

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9600 Series Recessed Wall Lights

Improved beam patterns and unique internal glare control allow remarkable 10 to 1 spacing, making far fewer fixtures necessary. Sealed lighting components eliminate water intrusion, the number one outdoor lighting problem. Modular components provide for fast, easy installation and maintenance.

Hydrel

Circle 166 on Inquiry card

Long-Throw Blacklight Fixtures from Wildfire

Think Of The Possibilities...
A Revolution In Blacklight Fixtures & Fluorescent Materials
Wildfire
Los Angeles

Wildfire's 400 & 250 watt series of 'Long-Throw' (up to 100') Blacklight (UV) fixtures define the "state of the art" in UV effects lighting for architecture and entertainment worldwide. The Wildfire units produce the Blacklight effect with many times the brightness, intensity and coverage of previously available technology. Luminescent paints, plastics, specialty coatings, wallpapers and other fluorescent materials also available. UL Listed. Call : 310-398-3831.

Wildfire, Inc.

Circle 167 on Inquiry card

Design Program

AGI by Lighting Analysts is a 3-dimensional indoor & outdoor lighting design program for your PC. AGI is capable of modeling virtually any exterior lighting application as well as interior spaces of most any shape including irregular ceilings. AGI can import and export CAD compatible DXF files and operates with IES format photometry.

Lighting Analysts, Inc.

Circle 168 on Inquiry card

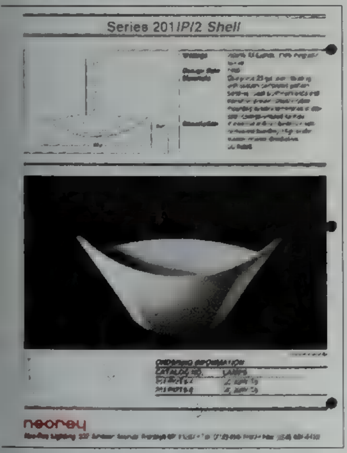
Sweet's Light Source

Sweet's Light Source - the construction industry's source for lighting product information. You'll receive; Over 400 pages of products in full color; professionally indexed for quick reference; Endorsements by IALD & IES, plus the EPA's support. Also available is Sweet's Electrical Engineering & Retrofit Catalog File - the industry standard. To qualify to receive Sweet's Catalog Files call 1-800-442-2258 or to place your product information in Sweet's call 1-800-421-9330. SWEET'S GROUP/McGraw-Hill, Inc., NY,NY.

Sweet's Group

Circle 169 on Inquiry card

Neo-Ray "SHELL" Indirect Pendant Luminaire



Series 201/*IP* "SHELL" indirect luminaire creates a new visual reference for how pendant luminaires will be visualized from now on. Inspired by neo-classic design, the SHELL articulates grace, full simplicity and elegance. The soft contours, recessed die cast ends, elegant cast joiner hanger details and perforated sides give the shell a perception of unmatched lightness, low mass and minimal scale.

Neo-Ray Lighting

Circle 170 on Inquiry card

SIRIUS™ Low Voltage Lighting System

New high-tech lighting system offers unparalled mounting flexibility versus conventional track. Bendable SIRIUS™ rails provide unlimited creative applications. A wide array of miniature, precision-machined fixtures are available for accent, task or uplighting. All SIRIUS™ components are hand-polished and finished in chrome or 24 carat gold plate. The SIRIUS™ system may be stem or cable suspension-mounted, and a complete selection of connectors, remote transformers, and accessories is offered. Booth # 517 LightFair

CON-TECH Lighting

Circle 171 on Inquiry card

Halos Series

The Halos series is available in a variety of styles and finishes. Shown here is the HLN-329Z-DP1 which is 32" in diameter and 38" in overall length. The etched acrylic donut above the spinning provides a luminous halo around the fixture. The finish is a combination of brushed aluminum and brushed chrome. The lamping is available in either energy-saving compact fluorescent or incandescent. The Original Cast Lighting Inc., 6120 Delmar Blvd., St. Louis MO 63112-1204, (314) 863-1895, fax: (314) 863-3278.

Original Cast Lighting

Circle 172 on Inquiry card

Workstation Task Lighting

Dazor's new Hangtight Mounting Systems free-up valuable desktop space. Easy to install brackets slip into partition slotted channels & adjust to various depths. Track Mount version spans the width of a wall panel & mounts in the slotted channels on both sides. Single Mount version is a stationary pivot holder that mounts directly in one vertical slotted channel. Look for us in SWEET'S Light Source and see us at **Lightfair booth #1434**.

Dazor Manufacturing Corp.

Circle 173 on Inquiry card

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(C) Contract Interiors
(L) Light Source

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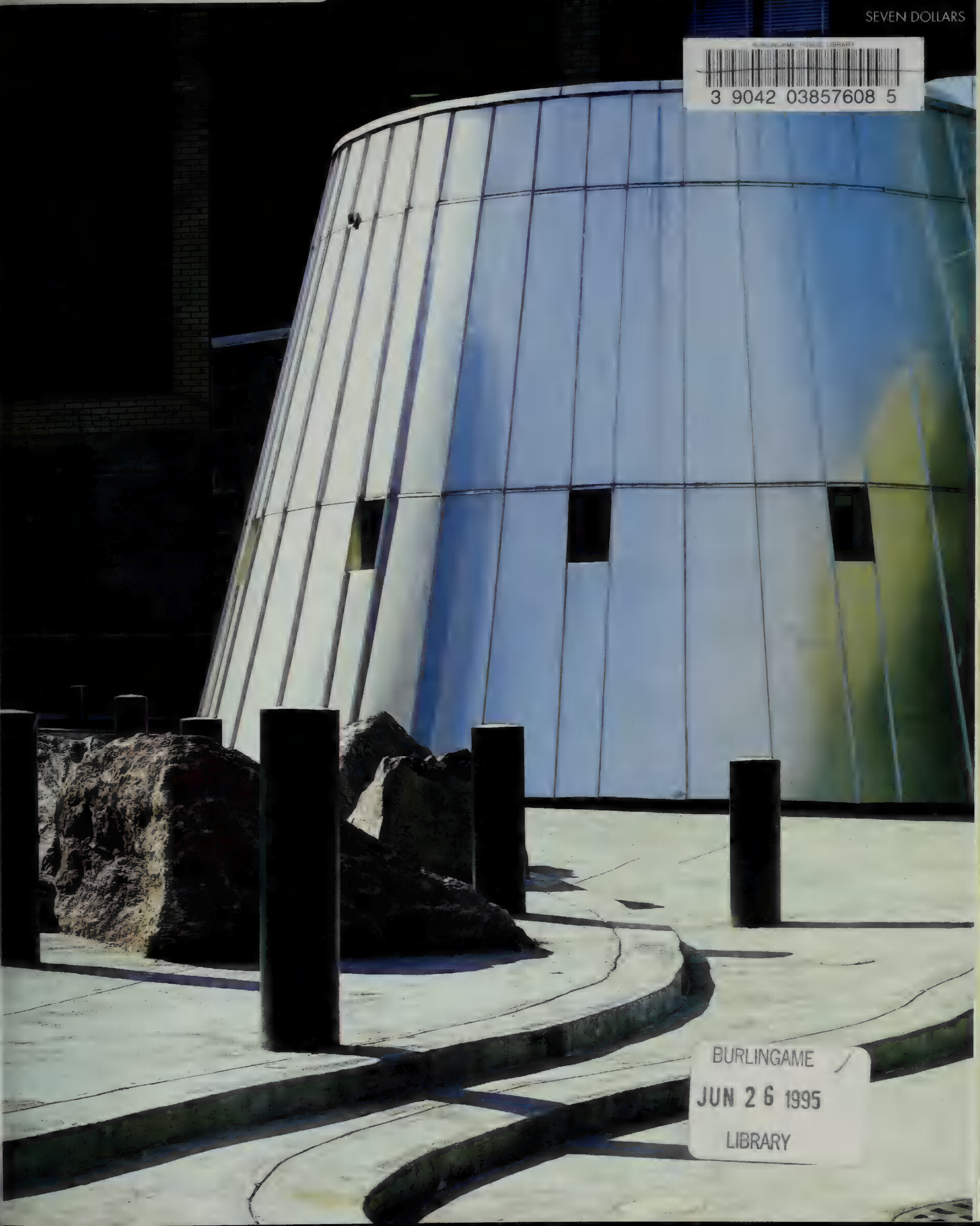

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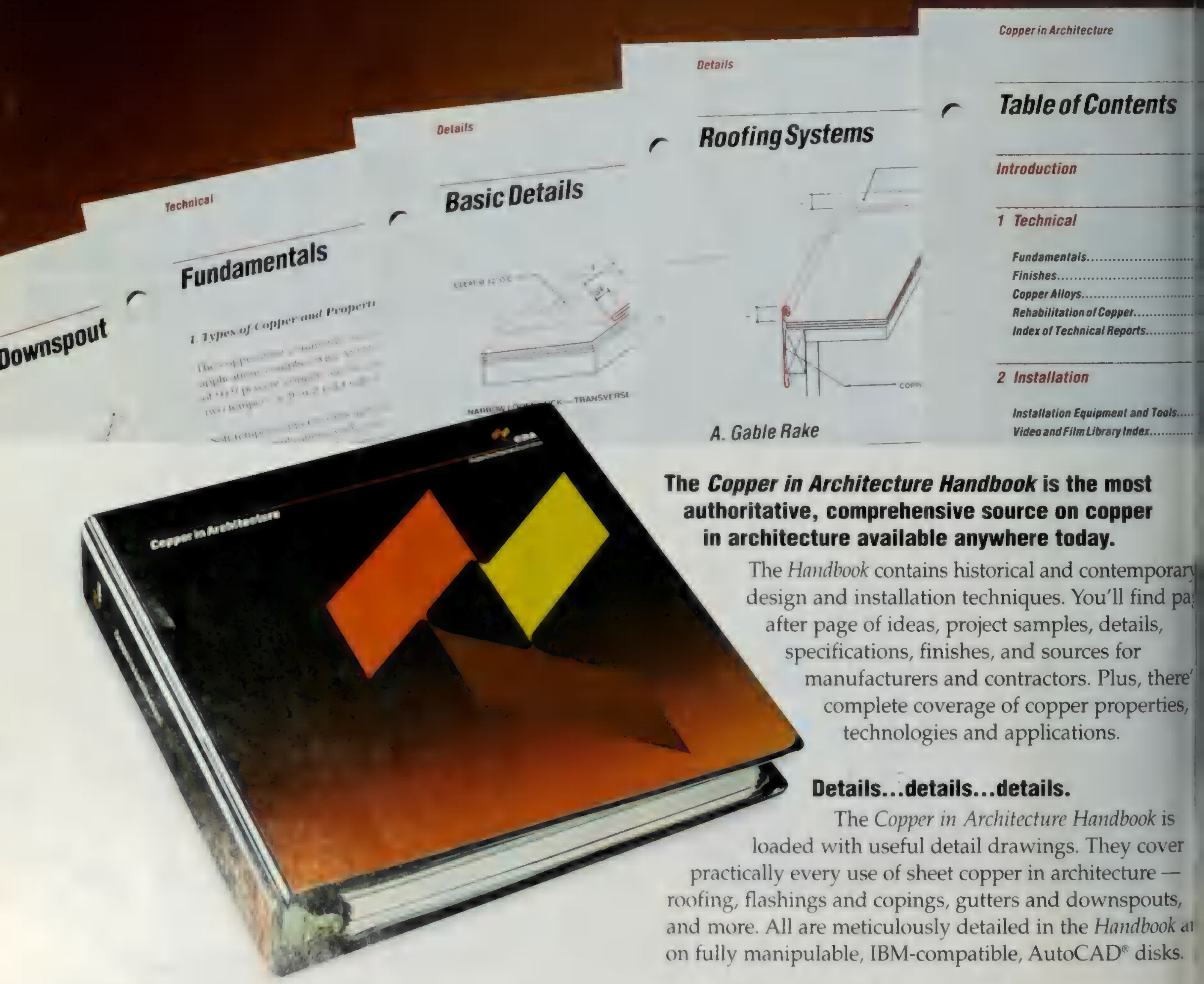

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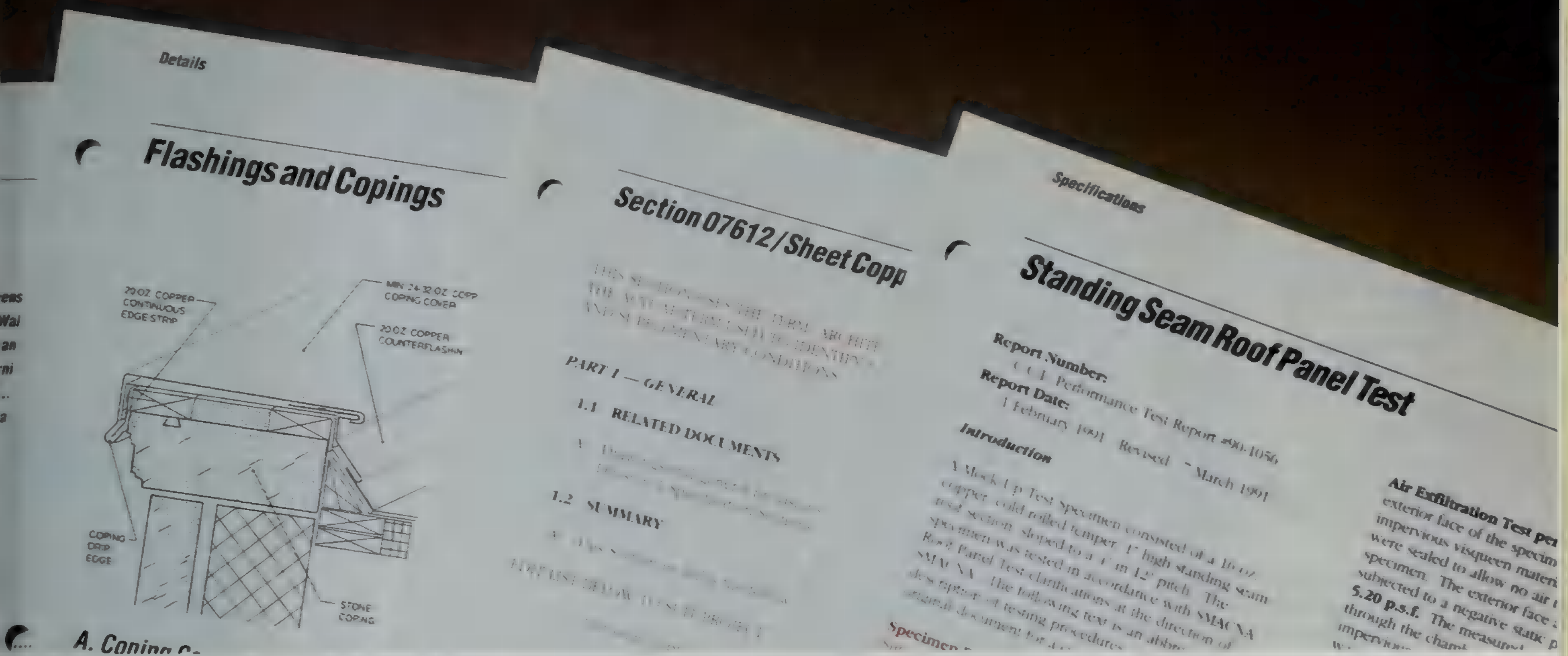

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More Trouble in River City

The article, "Trouble in River City" [RECORD, March 1995, pages 22-23], was excellent, but there is more.

The proposed casino was designed with such a large footprint that it could not fit on the site, necessitating the destruction of the Place de France, a small park situated between Rivergate and the Trade Mart, which contains the Joan of Arc Statue donated to the city by France. The park was built with federal funds using HUD's Legacy of Parks Program. Its demolition began without approval from the Department of the Interior and without a city demolition permit. As a result, the Louisiana Landmarks Society filed suit against the city and Harrah's and was successful at obtaining a court-ordered injunction on any further depredation of the park.

Harrah's now has three options: Appeal the ruling in a higher court; seek and obtain permission from the Secretary of the Interior to take the park, as required by federal law; or redesign the casino. They haven't appealed the ruling and they haven't been in contact with the Secretary of the Interior, which leads one to believe that they are redesigning the casino.

The ruling on this lawsuit has not slowed nor halted the demolition of Rivergate. This architecturally significant building is being razed and replaced with who-knows-what. Despite objections from the State Casino Board, the [illegible] as per the original plans; the other side is on hold. Whatever is built, it most likely will be a compromise from the atrocity depicted in the photo at the bottom of the article, if one can imagine such a thing.
Michael Rouchell, Architect
Member, Friends of Rivergate
New Orleans

In response to the Observations article in your March issue [RECORD , pages 22-23], we would like to clarify certain points. There was a time in the early planning phases of the New Orleans casino project when the Rivergate building might have been saved. Our firm's (Perez Ernst Farnet Architects and Planners/Modus, Inc.) initial design proposal to the city was to preserve and retrofit the building for casino use. There was a scant response from the professional community at that time.

As a point of information: Rivergate sat virtually empty, blighting its "urban assemblage" for the past 10 years, during which time there was not so much as a whisper of concern for its future or a ground-swell of support for its preservation. Every serious redevelopment proposal for the site involved the demolition of the Rivergate building. What alternative uses are there for a convention hall of limited size, made obsolete by the construction of one of the nation's largest convention centers? The use of the building for a casino seemed appropriate initially, but ultimately it proved to be unsuitable for many reasons.

It is incorrect to state that, "it has all happened without a serious planning body really involved in the process." Be assured, the City of New Orleans was not irresponsible in the exer-

Continued on page 119

Through June 24
"Temple of Liberty: Building the Capitol for a New Nation" exhibition in the Madison Gallery of the Library of Congress, James Madison Building, traces the effort to create a building reflecting the new nation's ideals. Bicentennial event features newly commissioned models of the Capitol and nearly 200 original documents. Call 202/707-2905.

July 1-14
- "The Art of Architecture: Works by Laureates of the Pritzker Architecture Prize," Columbus Gallery, Indianapolis Museum of Art. Call 317/923-1331.

Competitions
- Entries for the Precast/Prestressed Concrete Institute's design awards program are due June 30. Call 312/786-0300 or fax 312/786-0353 for details.
- Extension and Replanning of the Prado National Museum (Madrid). Registration due June 12 for a $215 fee. Call 34-1/435-77-23 or fax 34-1/575-38-39 for more details.
- The entry date for the Design for Transportation Awards Program has been extended to July 20. Projects completed between January 1988 and March 1995 in the U.S. and possessions are eligible in the following categories: architecture (passenger and freight terminals, stations, ports, other structures); historic preservation; urban design and planning; special interest (ADA provisions; mixed-use development). Call 202/682-5437 for more information.
- Society of American Registered Architects invites architecture students to submit work done in conjunction with school or independently. Entrants must register by Oct. 6, and submit projects by Oct. 13. Write SARA at 1245 South Highland Ave., Lombard, IL 60148, or call 708/932-4622 for details. ■

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David W. Prendergast, Architect
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ARCHITECTURAL RECORD Editorial

Architecture by Jury

With national conventions and announcements of design awards in high season, it's a good time to take some of the mystery out of the judging process and to assess some of the criteria used, rightly or wrongly, by the judges.

Here are six common concerns:

1. *Design quality vs "motherhood."* Dr. Johnson is said to have remarked, on seeing a dog walk on its hind legs, that one didn't expect it to do it well, but one was happy to see it do so at all. Much the same argument is often applied when judging an entry of high social, ecological, or contextual import—a street clinic, affordable housing, a regional corporate headquarters made entirely out of recycled products, perhaps a multi-use community facility in a rundown location. All are hard-to-attain buildings whose very existence merits bouquets. But if it's design you're judging, that should prevail as the main determinant (the same argument holds for technological brilliance, which should not be allowed to compel an award, say, for a building that is otherwise poorly planned).

2. *Impressive photography, lavish presentation.* If budgets permit, go look at the building; don't be taken in by images. You may encounter a mediocre facade or poor details which the photos failed to show. Scale, intimate on the photos, may be gargantuan in reality. And so on.

3. *Too big a budget.* Oddly enough, too much money can hurt a design as much as a shoestring budget. This past year one jury went to inspect a Modernist single-family house on which so many dollars had been lavished that it broke the design's back: not that the design was in bad taste, but its vociferous richness, from wall textures to furnishings to landscaping to needlessly elaborate detailing, all tied to a structural system that could have supported a small high-rise—added up to a cholesterol-laden concoction such as to enforce visual dieting for weeks.

4. *Not enough money.* That one is easier to handle, because it is here that the architect's skills are stretched to the utmost. The great Jean Labatut used to drum into his students that one of the architect's supreme accomplishments is to achieve "the maximum with the minimum."

5. *The tyranny of context.* Buildings should be polite to their neighbors, but not to the extent of depriving the newcomer of its architectural soul. Will future generations praise such a solution, or condemn it for not making a strong enough statement about its day and age? What if the context is demolished?

6. *Originality vs. conformity to trends.* Originality of form can be a great architectural virtue, but carried to extremes will have the same long-term disturbing impact as an overdose of technological, social, environmental, or contextual zeal.

The road to architectural excellence is dotted with the landmines of single-vision issues. It speaks well for the judging system that it has uncovered so much that is good. *Stephen A. Kliment*

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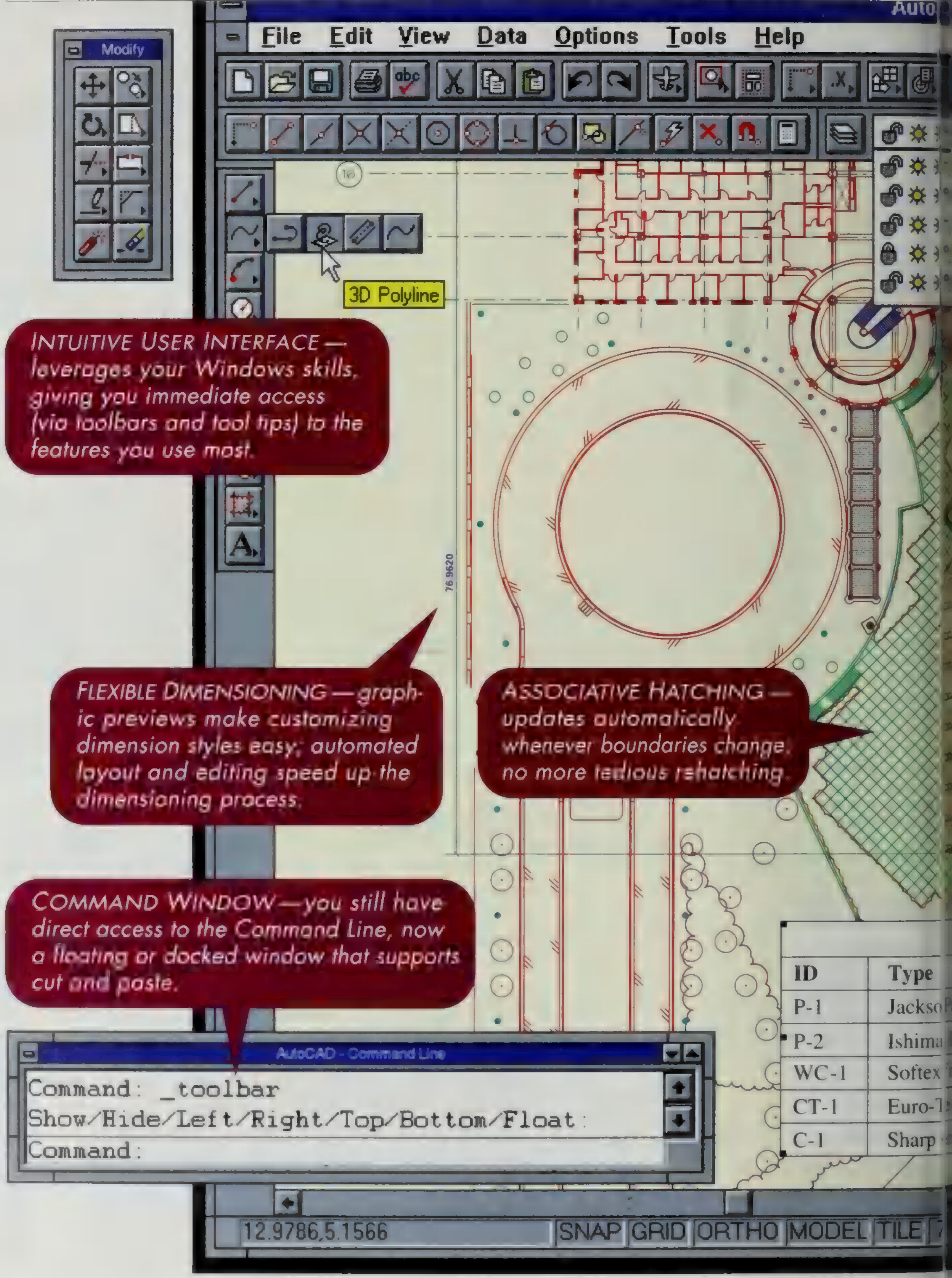

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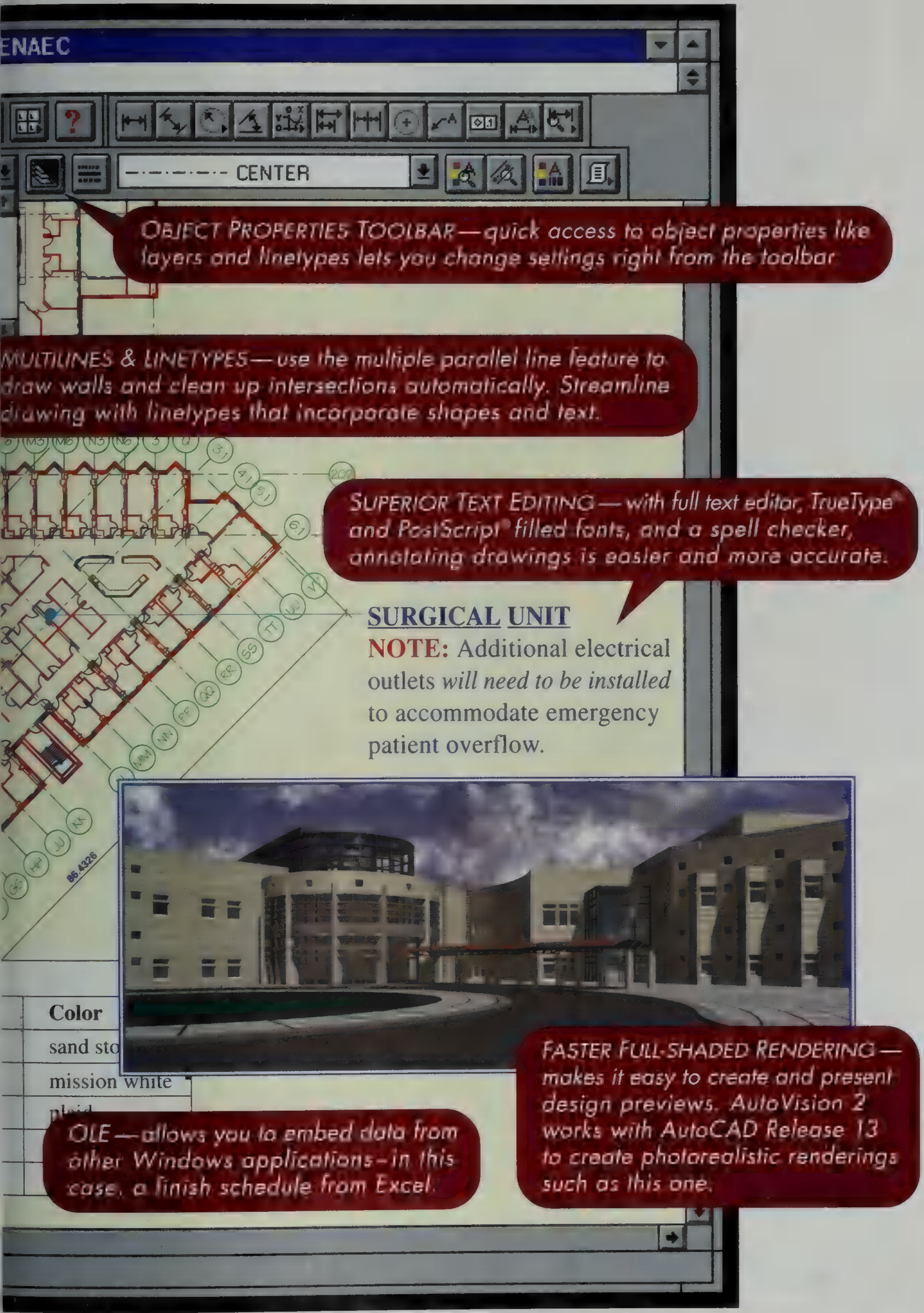

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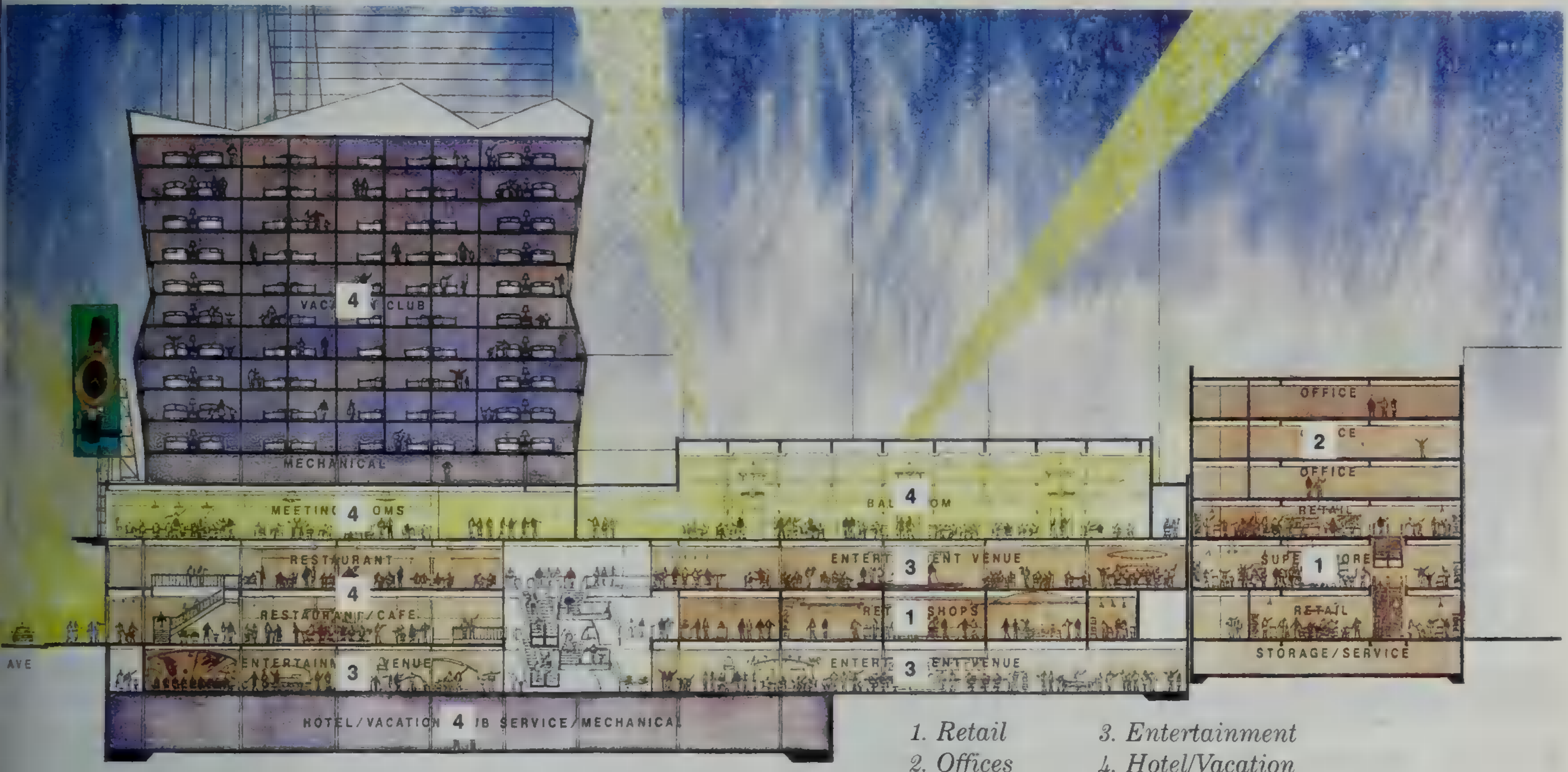
w York City

2nd Street's Glitz and Grit Meet Arquitectonica's Punchy nd Punchout) Times Square Design



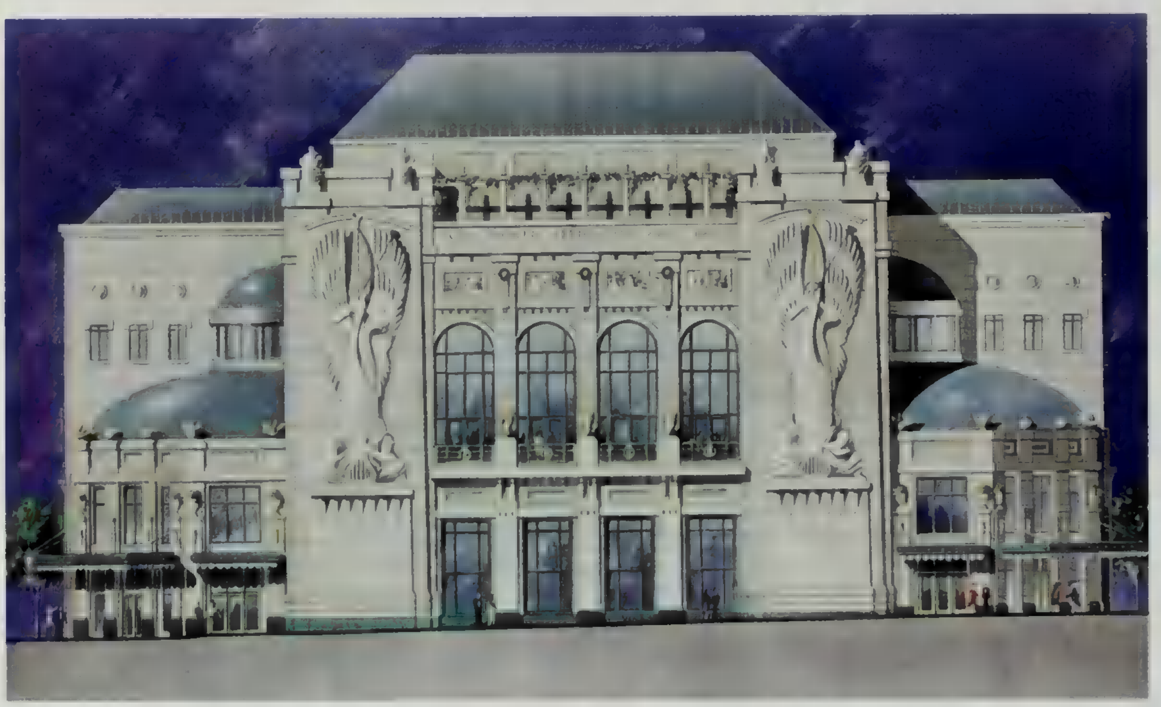
1. Retail
2. Offices
3. Entertainment
4. Hotel/Vacation

Arquitectonica's design for a 47-story hotel will become a new gateway to Times Square. The Miami firm—which was hired by Tishman Urban Development Corp. and Disney Development Co.—beat out two other teams: Zaha Hadid paired with Milstein Properties and Weiler Arrow management; Michael Graves teamed with Marriott International.

The three designs were radically different. Arquitectonica designed a sweeping tower sliced in two by a gently curved bolt of light (left). The beam of light is meant to visually connect the skyline to the streetlife below. The tower is pushed back 100 ft from the street and is entered from the less-traveled 43rd St. side. On 42nd St, a sculptural, block-like building (above) will house Disney's Vacation Club. The building is covered in an elaborate mural that shows scenes from New York attractions—the Guggenheim and South Street Seaport among them. Diller and Scofidio will design a corner video display meant to suggest the famous Times Square news ribbon a block away. (The team was the designer of one of the more memorable interim projects: a pair of lips that harangued passersby from the doorway of an abandoned theater.) Here, they will tone it down to meet the "family standards" of Disney and Tishman. At street level, glitzy retail stores and signage were designed by D'Agostino, Izzo, Quirk, of Boston.

The Hadid project attempted to tie in more directly with the dynamics of the Port Authority across the street. Her futuristic tower was designed as a vertical street that locked into subway and underground passages . Graves, on the other hand, looked nostalgically to the past with a clock tower that seemed inspired by Raymond Hood's (former) McGraw-Hill Building farther down the block. *Nicolai Ouroussoff*

Paris on the Seine—or Fort Worth On the Trinity?



David M. Schwarz/Architectural Services Inc. has designed a traditional music hall in Fort Worth, Texas, inspired by the grandeur of Carnegie Hall and the Théâtre des Champs Elysées—two of Schwarz's favorite theaters. In Fort Worth, the site was tight: a 40,000-sq-ft downtown city block. The two main entrances are pushed to the corners, one used mainly for pedestrian access and the other leading to a parking lot. A coffered and domed ceiling dominates the theater. Construction begins this month. ■

From Auto-Body Repair Shop to Children's Art Oasis

© Erich Koyama photos

[illegible] & [illegible] Architects and Michael [illegible] Architect have transformed an auto-body shop in Central Los Angeles into an [illegible] ceramics for children. The [illegible] exposed-wood [illegible] the open-floor [illegible] loft space. [illegible] for perfor- [illegible] replaced the original garage doors, look out onto a courtyard dotted with several palm trees. At the center of the garden, the sculptural form of the ceramics studio seems a more contemplative retreat. A 30-ft light well bathes the space in daylight. The Mark Taper Center/Inner City Arts will provide various art classes for over 4,000 elementary-school students. *Nicolai Ouroussoff*

Briefs

Restorations

- Severe structural problems and a subsequent 10-year closing were the latest upset in the turbulent history of Paris's Panthéon (above). Built on the brink of the French R olution, Soufflot's neo-classical building endured changes with each new governme Almost immediately, the 42-nave windows were blocked in, as the building went from church to mausoleum. The building's dome has long had structural problems caused by rusting and enlargement of iron framework supporting the masonry. Stones in excess of 19 pounds came crashing into the nave, initi ating a $62-million interior and exterior renovation. The building reopened this spring, thanks to protective nets hung acros the ceiling. In the process, 500 original plan and drawings were found. Work continues until 2010. *Claire Downey*
- Madrid's Prado will finally get equal time with the Louvre in Paris and London's National Gallery. The Spanish governmen has agreed to provide funds for an extensive renovation and the addition of two new buil ings to house the museum's impressive collections. The dilapidated building now on has space to show one-sixth of its paintings.

Seattle Symphony's New Home

Seattle's city council has agreed to spend $4 million on a new Concert Hall. The Seattle Symphony must raise an additional $54 million, and $8 million more will come from public-private sources. Loschky Marquardt and Nesholm were hired as project architec in 1993. The concert hall will include a 2.500-seat main hall and a 600-seat auditorium.

Carlsberg Award

- Juha Leiviskä is the winner of the 1995 Carlsberg Architectural Prize. The 59-year old Finnish architect—who is almost unknown outside his native country—won over the likes of Alvaro Siza, Jean Nouvel, Renzo Piano, and Christian Portzamparc. Queen Margrethe of Denmark presented th coveted $250,000 award.

io

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ury" science and technology center in
ımbus, Ohio. In the schematic proposal,
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left in model above). The old structure
house educational facilities, shops, and a
aurant with a river view, while exhibition
ces will occupy most of the new construc-
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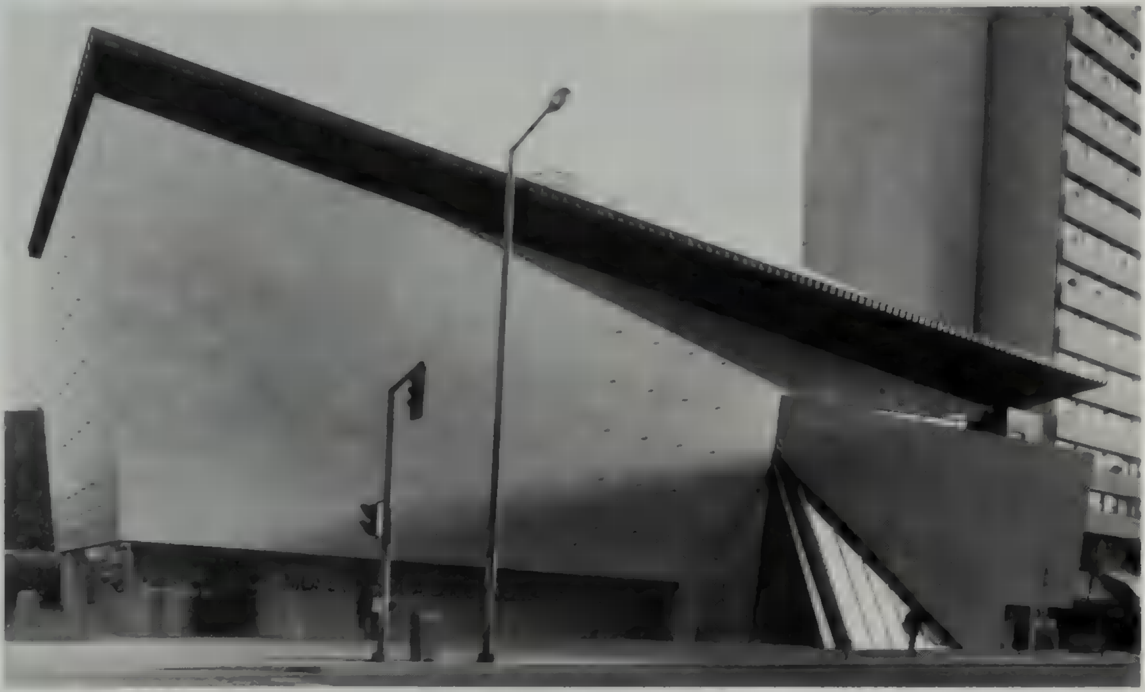
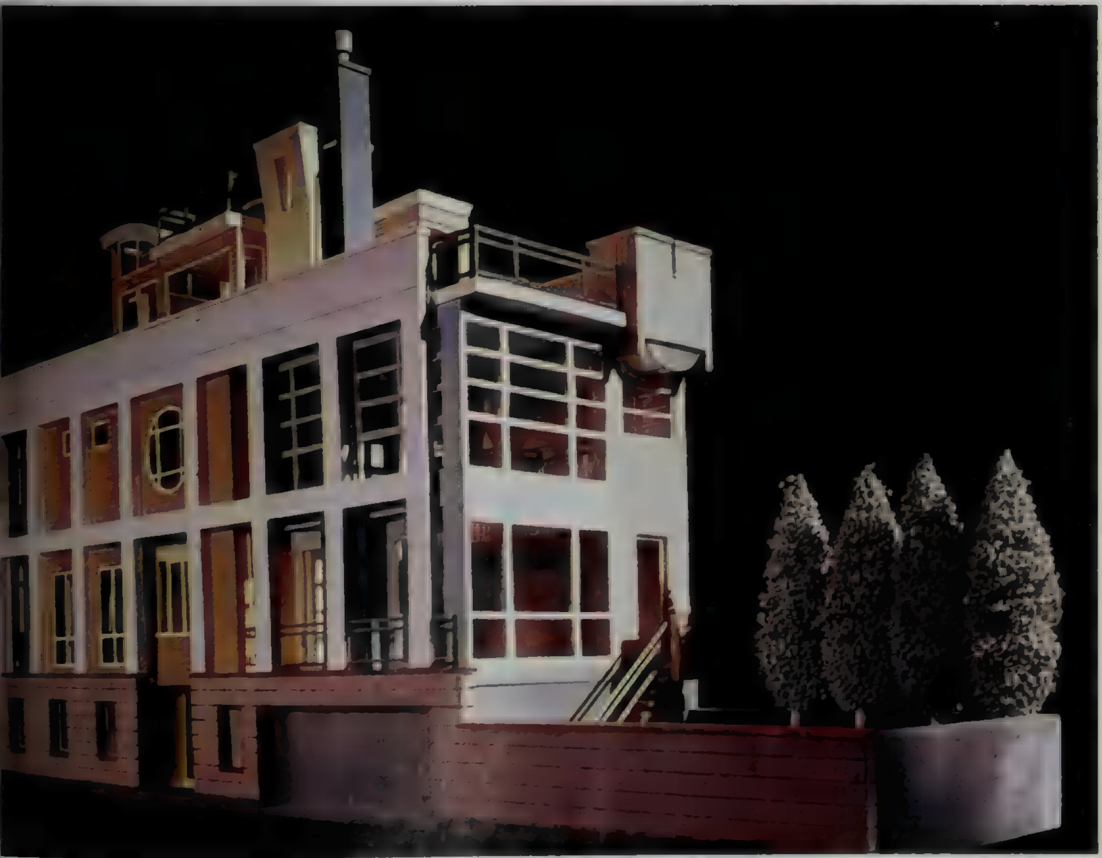
Toronto

High-Style 'Shoe Box' Museum Leaves A Fashionable Footprint



Toronto's Bata Shoe Museum is a subtly designed limestone case for the world's largest shoe collection. In Moriyama & Teshima's design, a copper-clad roof rests on the building like the lid of a box. Two exterior walls are subtly canted inward, creating a sense of outdoor spaciousness and an intimate interior. The main entrance seems to burst out of the facade, a glass wedge opening onto the central circulation space, where a cantilevered steel-and-glass staircase leads to galleries. The museum opens this month. ■

w Jersey



Caged in Princeton's Shadow

Architect Schmitt Anderson's design of a residence in Princeton, New Jersey, tucks a traditional redwood shake and stucco home behind an aluminum grid frame on a tight, 2,000 sq-ft site. The aluminum metal panels give an eerie formality to the house's exterior, which sits on a site overlooking the pastoral setting of Princeton's campus. The wood and stucco cladding also masks a concrete-floor-slab construction. An elevator shaft rises above like a bell-tower and anchors the structure. On the roof, a thin lap pool becomes a "dark space," creating a transitional space between the project and a neighboring house. The 3,200-sq ft house is expected to be completed this summer. ■

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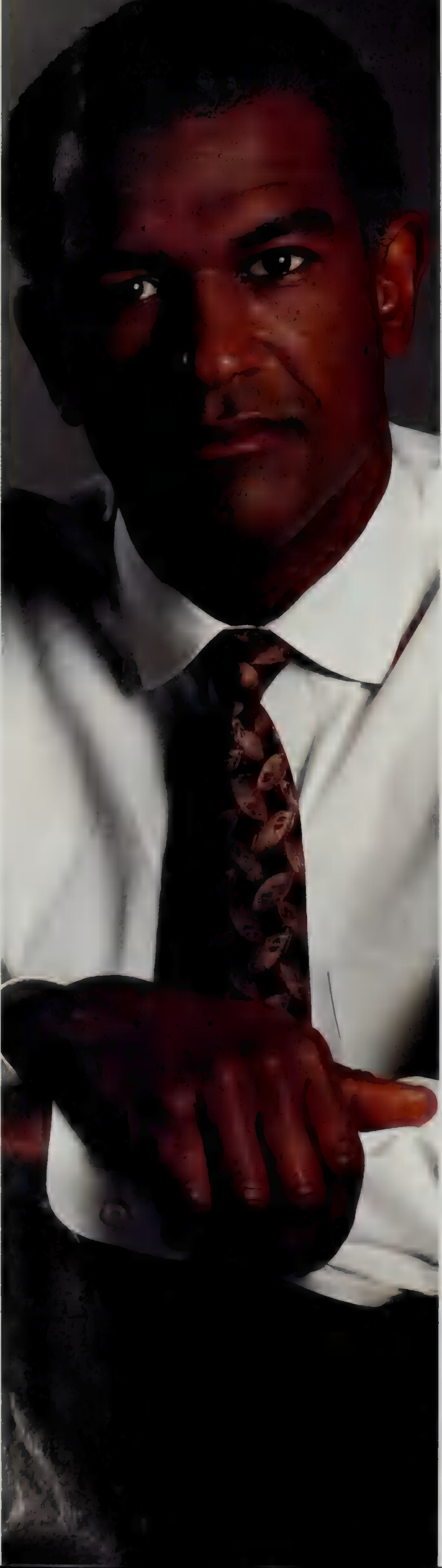

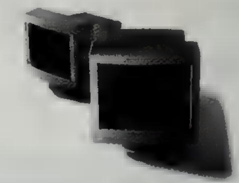

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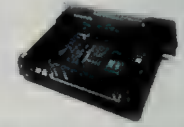

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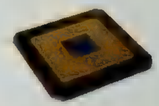

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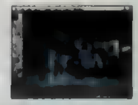

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**The Power Macintosh 6100/66 DOS Compatible [illegible] [illegible] [illegible] [illegible] using SoftWindows from Insignia Solutions run MS-[illegible] 6.2 [illegible] Windows 3.1. †For proof, ask for the 1995 Ingram study comparing Power Mac computers to [illegible]-processor-based computers running Windows. © 1995 Apple Computer, Inc. All [illegible] reserved. Apple, the Apple logo, [illegible] QuickTime [illegible] "The power to [illegible] best" are registered trademarks of Apple Computer, Inc. Mac, Power Mac, [illegible] [illegible] and QuickDraw are trademarks of Apple Computer, Inc. [illegible]™ is a trademark of International Business Machines Corporation, used under [illegible] [illegible]. [illegible] Apple products are designed to be accessible to [illegible] with [illegible].*

anta

IA Convention

Barr-Kumar

eing ourselves as collaborative partners"
the theme of this year's annual
vention of the American Institute of
hitects held in Atlanta, Georgia, May 5-8.
goal was to help architects take "a
ling role" in changing project delivery
ems, new technologies, and the
tuating economy. But it became clear in
end that there were many ideas on what
itects' "leading role" meant. Former AIA
sident Donald Hackl saw the profession
taking ultimate responsibility for its
jects: "The architect is best qualified to
elop a project team. There is too much
about process instead of product."

business sessions produced a heated
test for AIA's new first vice president.
ner in a field of six candidates: Raj Barr-
nar. Among resolutions voted down was
to remove the mandatory requirement
continuing education. Winner of the
ual DuPont Benedictus Award was
ign Antenna for the first all-laminated
ss building.

v Urbanists and Neotraditionalists
ared off in a seminar billed as "Housing:
Market, the Industry, The Client, The
ctice." The debate was muddled because
her side seemed to have a clear and
inct definition of the two movements, but
mphis architect J. Carson Looney did
ry patterns of streets "dominated by
ages and driveways." He defended on-
eet parking on residential streets on the
und that it made for greater safety. For
part, Barry Berkus, of Santa Barbara,
if., attacked linear streets as "dangerous,"
mpioning a variety of street patterns. He
ninded the audience that 20 percent of
erican families are headed by single
ents, and that the design of houses and
munities did not properly reflect this
tistic. ■

Atlanta

$45,000 Houses Built by Volunteer Help Will Be Ready for 1996 Olympics

© Laura Viscusi

Volunteers from four sponsoring organizations, as well as the future owners, worked in a hot May sun last month to erect three 1,300-sq-ft houses, part of a 100-house program for Habitat for Humanity to be completed by the start of the 1996 Summer Olympic Games in Atlanta. The three houses were designed by Design Traditions, which won a competition for a house buildable by amateur help, accessible, and selling for under $45,000. Sponsors were Georgia-Pacific Corp., which contributed engineered lumber and other products; MBNA America; The McGraw-Hill Companies' Construction Information Group, which includes ARCHITECTURAL RECORD; and AIA/Atlanta. *S.A.K.*

AIA Convention

Learning from Atlanta

"If the north is Hamiltonian, the south is Jeffersonian," says James R. Vaseff, Georgia Power Company's manager of "external issues," which in Atlanta means urging the private sector to provide facilities and services that people elsewhere expect from government. Architects who failed to explore their host city during the AIA's 1995 annual convention missed practical lessons in its theme of collaborative effort. By northern standards, Atlanta is a city where entrepreneurs thrive under loose reins. Not surprisingly, it is the home of America's most visible architect-developer, John Portman, who singlehandedly changed hotel design around the world with his 1967 Hyatt Regency Hotel's soaring lobby. In part, low taxes and lack of regulatory controls make this city a magnet for high-tech service industries, corporate central headquarters (CNN, Coca-Cola, Holiday Inn, UPS), and countless regional headquarters. Such laissez-faire civic policy could produce urban chaos and, indeed, modern development did wipe away much of the downtown's earlier character. Today, citizen groups get involved. "We look for economic growth that supports conservation," says Carolyn Boyd Hatcher, president and CEO of the Georgia Conservancy. "People who talk about a simple choice don't understand realities very well." One example of how citizens get results is the 1996 Olympics—a $1.5-billion venture using no public monies. Infrastructure director Randal Roark and developer Starling Sutton are utilizing enthusiasm over the event by getting corporations and institutions to carry out neighborhood-revival projects in a "Cultural Ring" linking Olympic sites around the city. *Charles K. Hoyt*

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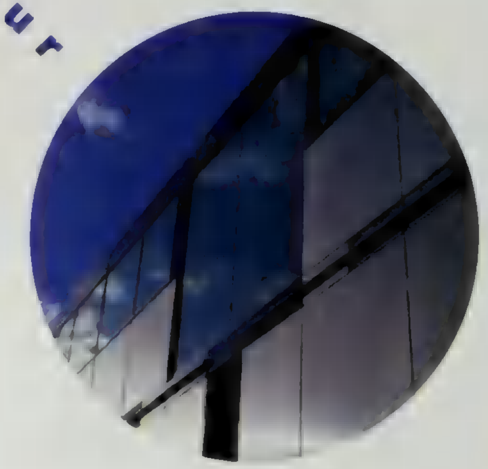

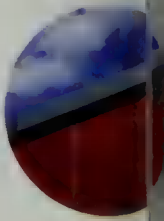

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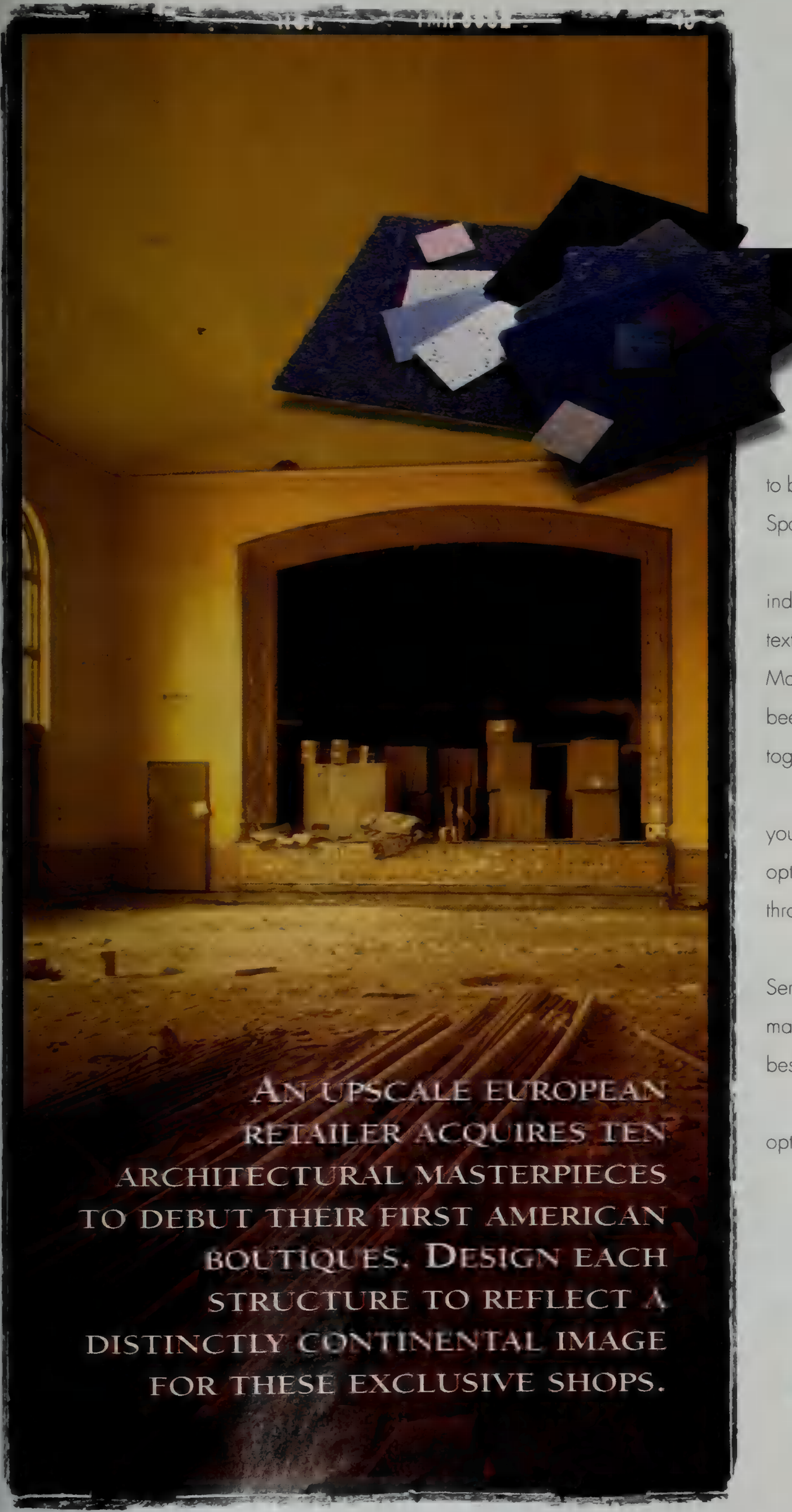
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eviewing the State of ustainable Design

ay World, Green Heart: Technology, ture, and the Sustainable Landscape, *Robert Thayer. New York: Wiley, 1994, pages, $40.*
tures By Design: The Practice of logical Planning, *edited by Doug erley. Philadelphia: New Society blishers, 1994, 224 pages, $15 (paper).*

viewed by Susan Maxman

we struggle to define "sustainable sign," two recent books have emerged that p chart the new terrain. Robert Thayer's *ay World, Green Heart* is aptly named, as escribes the conflict inherent in today's ironmental crisis: our love of technology sus our love of nature and our fear of the ative side-effects of technology. "We uggle with a collective green heart in an bivalent technical gray world," says ayer in this highly quotable book.

Futures by Design, Doug Aberley com- s a series of articles from some of the best nds that have addressed the issue of ecoical planning. This short book is meant to ve as a "trail marker" or guide to the rsuit of new patterns of development that ate harmonious relationships with nature. th books provide insight into the obstacles and opportunities for achieving a balance ween nature and technology.

ayer's book deals with the landscape as e broad physical and experiential arena which human activity occurs." Its specific ject is the "taste-free" space within the erican landscape which is created without fessional designers. Its premise is that we prefer landscapes that show no signs of man intervention and that our affection for ture creates resentment for technological ditions to the land. As he states, "we have to allow technology a similarly favored ce in our hearts. The land is our true love, technology is merely a concubine."

© Paul Gipe

Technology that takes advantage of a renewable resource— wind— shares the landscape with an old-fashioned power plant.

are, however, controlled by technology so t instead of it serving as a means to sustenance, it has become an end in itself. To quote Leo Marx's paraphrase of Thoreau, "We have become the tools of our tools." For Thayer, the true dilemma is that though we cannot live without our addiction to technology, we feel guilty about its negative effects on nature. But still, as he puts it, "One can hardly imagine a political, social, or ecological crisis powerful enough to wrench American hands from the steering wheel," even though our addiction to automobiles has totally altered our landscape.

Because we feel guilty for these perpetrations on the land but cannot change our habits, we create make-believe landscapes. We are in the process of "theming" the entire country and of developing "virtual landscapes," says Thayer. "With a creative vision of paradise, we have begun to create a hell on earth," states Thayer. We have denied the harm being done to our eco-systems because much of it is invisible damage, such as the affects of acid rain.

What's the long-term solution? Thayer believes that only with the creation of sustainable landscapes can we resolve the conflict between technology and nature. We need to drastically change our culture from one dominated by technology unbridled to one with an environmental ethic, says Thayer. In his view, we cannot have "business as usual." This is not a book that spells out how to plan or politically achieve reform, but makes us aware of what we as designers must do to turn the tide that threatens ecological destruction to our planet. At least with me, he succeeded in creating a keener understanding of the human behavior that leads to the mess we find ourselves in. The solution becomes clearer because the root of the problem is clearly defined.

In *Futures By Design*, Doug Aberley celebrates the accomplishments of those people successful in ecological planning. Read together, this book and *Gray World, Green Heart* make for a powerful pair. Having read Thayer's call to action and then learned of the remarkable accomplishments of some pioneers in the field of ecological planning, we begin to sense that all of this is doable.

As one who has been urging my profession to re-direct its energies to conservation and design that promotes sustainability, I am most encouraged to see assembled in one book the amazing thoughts and accomplishments of so many brilliant minds. Whether it be the work of the Greater Ecosystem Alliance for the increased protection of the North Cascades, a description of the planned community of Cerro Gordo, or the Silva Forest Foundation and its work in setting bioregional standards to certify wood products, these initiatives chronicle the widespread efforts to protect and restore ecological systems.

Aberley organizes the various projects into six interrelated sections. The Introduction defines ecological planning and lays out for the reader "an ecological world view." This is followed by three sections that describe efforts around the country to create sustainable human settlements. The book ends with a comprehensive guide to effective ecological planning, supplemented with an extensive bibliography of essential ecological planning texts and journals. While *Gray World, Green Heart* can be seen as a "call to arms," *Futures By Design* is, as its author says, "a book that has been created to be used." ■

san Maxman is a principal of Susan axman Architects in Philadelphia and a st president of the American Institute of chitects.

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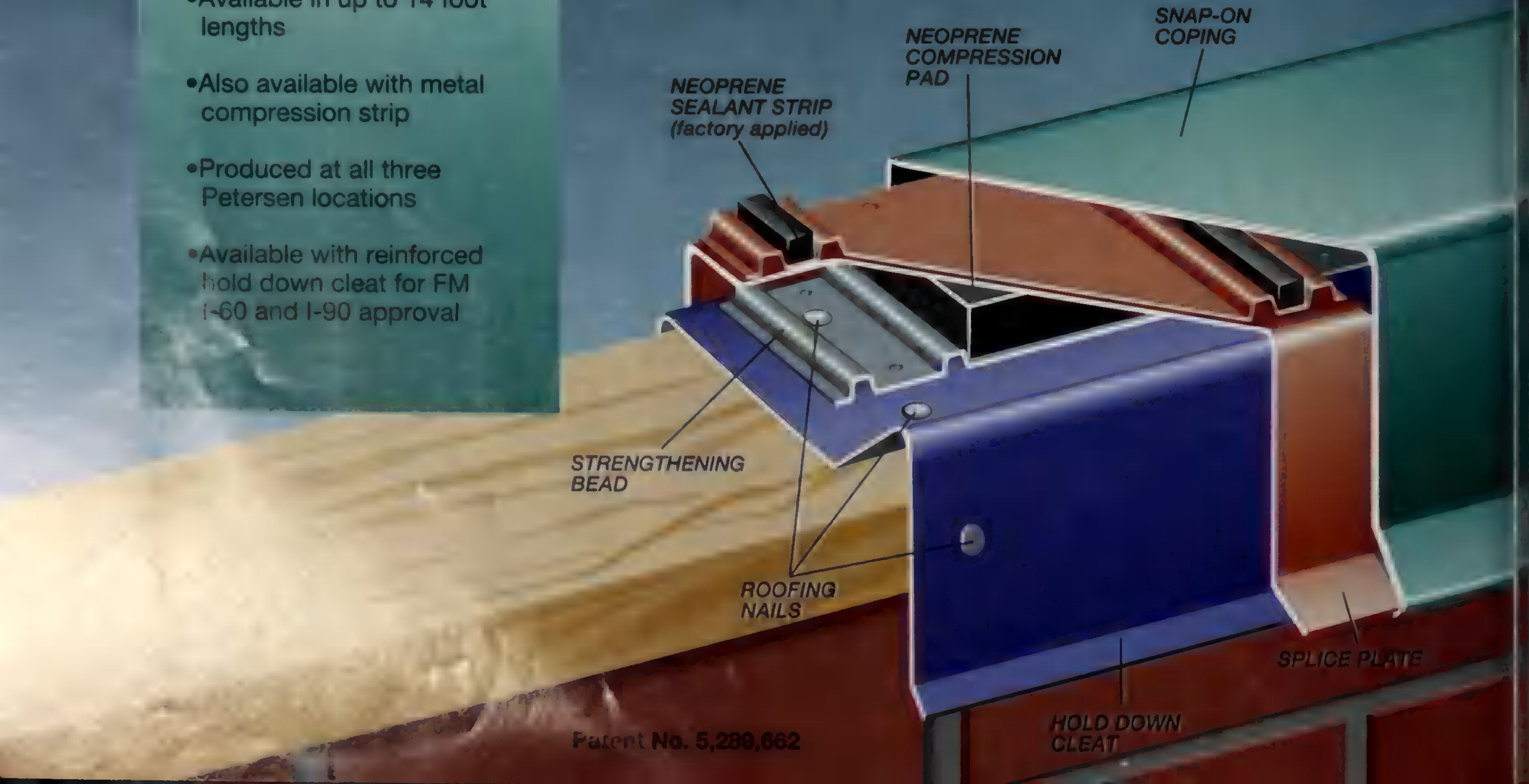

Patent No. 5,289,662

nputers in the Professional Practice of sign, *by Karen M. Brown and Curtis B. irles. New York: McGraw-Hill, 1995, 227 es, $32.*

CAD Rating Guide, 4th Edition, *by W. udley Holtz. Bethesda, MD: ZEM Press, 4, 600 pages (plus disk), $150 ($49 for ners of previous editions).*

viewed by Steven S. Ross

computerization has swept through hitectural offices, the last holdouts have n concentrated at the top—designers o insist on working with sketchpad tead of CAD, a small address book instead client marketing database, and a cloth-nd checkbook rather than bookkeeping tware.

ren M. Brown and Curtis B. Charles the latest in a long line of design profes-nals who have written books to change holdouts' minds. They do a good job. eir book is a small one, with short, easily ested chapters.

ey cover all the bases for small practices, ept production drafting, and all aspects of issues involved except details on the cost new computer toys. Although they don't ore the alternatives, they concentrate on Macintosh platform, which is well-suited the creative side of the business as well as small offices.

is the kind of book a frustrated, computer-vy young associate gives to a 55-year-old ss. Unlike most books on the subject, it ually explains the functions of high-resolu-n monitors, digitizers, 3D modeling and imation software, client databases, spread-eets, project-management packages, and forth.

is true with most books on the subject, it tols the idea of teamwork—of avoiding the -too-common practice of having designers sign, drafters use CAD, and managers do books. It also extols the idea that presen-ions often have to be in 3D, and maybe en animated.

at's not surprising, given the authors' ckgrounds. Brown is chief executive officer of C4 Studio, a firm that consults on computerizing architectural and design firms and does presentations. Charles works at C4 and lectures at the University of Miami. But beware! Clients want 3D presentations, but don't always want to pay for them!

And where do you get the details on exactly what CAD package to use, what add-on design tools might be available, what equipment brands to focus on? That's where Brad Holtz comes in. This latest version of his rating guide (the first was published in 1989) details 143 hardware and software systems from 109 vendors—and lists over 300 other products and vendors as well.

And what details! For the key 140 or so, you get a few paragraphs of descriptions, pricing, optional add-ons (sometimes pages of them), a vendor's statement about matters such as differentiation from competitors, and comments from users (again, sometimes pages of them).

The idea is to help you narrow your choices before calling dealers, and to help find add-ons for a system you may already be using. Facts are current to roughly this past Thanksgiving; AutoCAD 13 is included.

There are also about 40 pages on managing CAD and approaching the design process, along with a detailed glossary. Endless tables allow you to scan features of competing systems quickly. The tables are also on disk for use with spreadsheet or database software.

Everything is clear and concise, but the tone is that of a reference to help the already converted—not that of an evangelist.

By the way, both of these books concentrate on architectural practice, but aim for a wider market by making asides to engineering design. You can live with it. ■

Briefly Noted

They All Fall Down: Richard Nickel's Struggle to Save America's Architecture, *by Richard Cahan. Washington: Preservation Press, 1994, 262 pages, $25.*
Cahan tells the gripping tale of Richard Nickel, a photographer who spearheaded the preservation movement in Chicago in the 1950s and '60s and who died in an accident while salvaging items from Louis Sullivan's Stock Exchange Building in 1972. Nickel was a key figure in reviving the reputation of Sullivan and in fighting the destruction of Chicago's architectural legacy. The book is meticulously researched and engagingly written to appeal to a broad audience. It also includes some of Nickels's straightforward yet haunting black-and-white photographs of landmark buildings, many of which have been lost to the wrecking ball.

Alvaro Siza: City Sketches, *by Alvaro Siza and Wilfried Wang. Basel, Switzerland: Birkhäuser Verlag, 1994, 248 pages, $72.*
Organized by city into 10 chapters, this sketchbook by the Pritzker Prize-winning Portuguese architect offers views of projects he has worked on, as well as street scenes and urban settings that have shaped his designs. As Sir Norman Foster says in his Foreword, sketches are "a path into the inner thoughts of the person at that time," and can be more revealing than final presentation drawings. Siza's loose-lined, free-wheeling sketches capture the architectural essence of cities such as Lisbon, Barcelona, Paris, Berlin, and Macao.

The Total Package: The Evolution and Secret Meanings of Boxes, Bottles, Cans, and Tubes, *by Thomas Hine. Boston: Little, Brown, 1995, 302 pages, $25.*
As he did in his previous book, *Populuxe,* Thomas Hine peels back the surface reality of familiar objects to examine what's really going on. Having addressed popular culture and design in the 1950s, he now focuses on the history, design, and impact of packaging on today's world. It's a fascinating subject because packaging's all-pervasiveness lets it fly, says Hine, "beneath nearly everyone's analytic radar" and because it says so much about us. Like ourselves, packaging can be wasteful and misleading, but also clever and inventive, he says. This is a fun book that reveals a lot about our consumer society.

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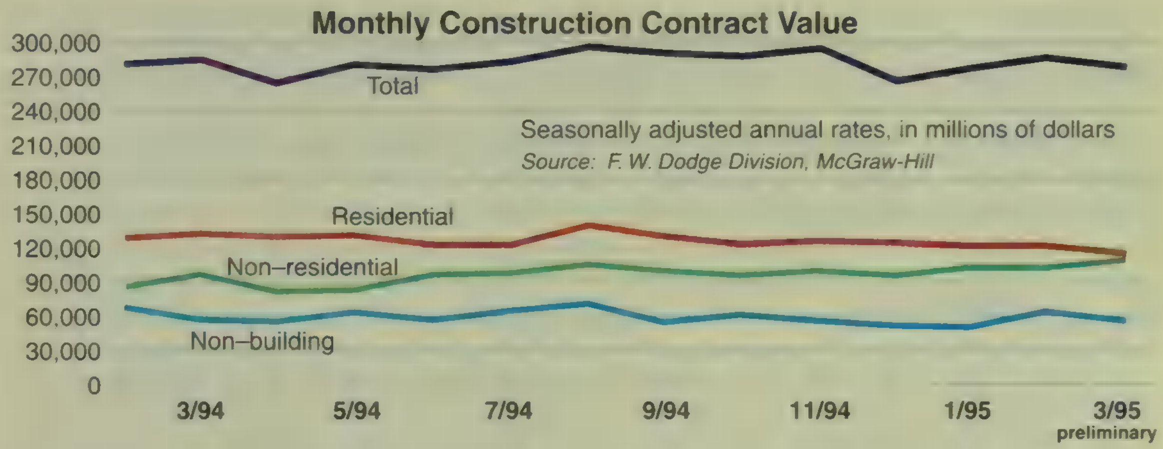
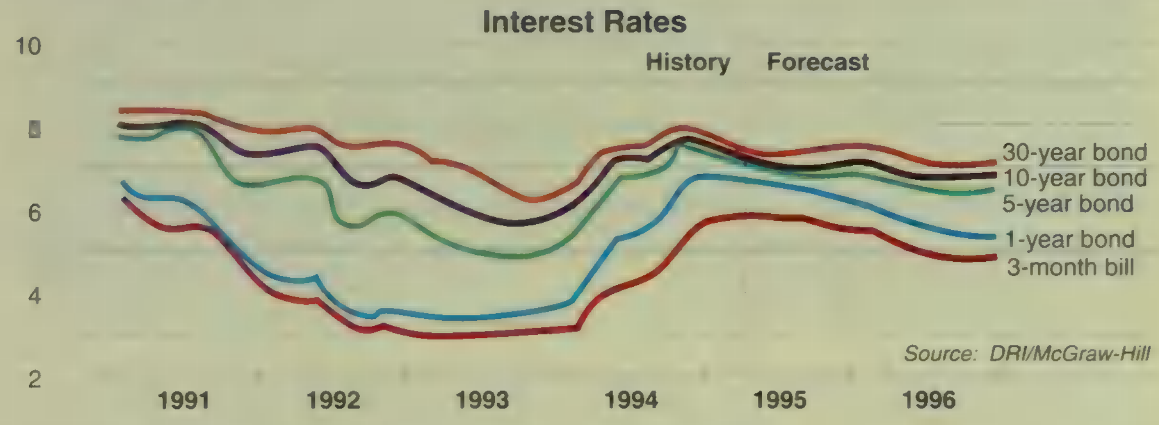
ndicators

ools are up though housing weakens
st-quarter construction-volume figures
w predicted weakening in single-family
struction (though apartments continue to
engthen). Schools are a bright spot as dis-
ts respond to growing enrollment. Volume
ds the early 1970s boom, says F.W. Dodge.
rehouses and office buildings showed con-
ued gains, offset by stores. On an
djusted basis, construction was 4 percent
er than 1994's first quarter, with residen-
down 13 percent and nonresidential up 8
cent. ■


Monthly Construction Contract Value

Seasonally adjusted annual rates, in millions of dollars
Source: F. W. Dodge Division, McGraw-Hill

od news and bad news
e good news is that DRI, the economic-
ecasting arm of McGraw-Hill, sees sliding
erest rates in most of 1995 and 1996, which
uld loosen private clients' purses. The bad
vs is that a combination of deficit-reduc-
n fever and constrained local-government
eipts means that public-sector work will
ely weaken. DRI assumes that construc-
n won't be cut as much as deficit hawks
nt. The forecasts predict the middle of
5 will be weakest for housing, with
ewed strength later. ■


Interest Rates

Source: DRI/McGraw-Hill

hat design is worth
ough it focuses on landscape amenities,
ch as native plantings and ponds, an
riguing report, "Value by Design: Land-
pe, Site Planning, and Amenities," shows
ottom-line value for hard-to-quantify
hetic qualities. Researchers interviewed
velopers and reviewed cost data on 11
velopments to verify findings. (They repre-
nt a range of residential types and
ations, but almost all are suburban.) The
enities usually helped the project sell or
ded profits. Info: 202/624-7000 ■

Value of Landscape and Amenities

	The Woodlands	Straw Hill	Blackhawk	7979 Westheimer	Andover Park	Harbour Ridge	Mountain Park Ranch	The Terraces	Carnegie Center	Reston Town Center	Del Mar Plaza
Evidence suggests amenities added to developer's profits	■	▲	▲	▲	●	■	▲	■	■	●	▲
Developer believes (or evidence suggests) that amenities generated a sale or rent premium	▲	▲	▲	▲	●	■	▲	●	▲	■	▲
Project planning and amenities had positive effect on developer's reputation	▲	▲	■	■	▲	■	▲	■	▲	■	▲
Amenities quickened sales and leasing	▲	■	▲	▲	●	■	▲	■	■	■	■
Landscape and amenities gave project an edge over competition	▲	■	▲	▲	■	■	■	■	▲	■	■

KEY ▲ High ■ Medium ● Low
Note: High, medium and low represent the researchers' overall impression of the degree to which the statement is supported by evidence

Source: Urban Land Institute

Charts prepared by Leanor Glynn

hort Takes

• **The Power of Architects:** If you accept the widely held notion that architects' value is little perceived, turn to the May 15 issue of *Newsweek.* The cover story describes the increasing acceptance of "New Urbanist" prescriptions for fixing suburbs [RECORD, May 1994, pages 28-33]. These ideas came out of architects' unique skills and point of view, not from planners or developers—the presumed experts. The secret to success? Proponents—Andres Duany, Elizabeth Plater-Zyberk, Peter Calthorpe, and others—have relentlessly proselytized their ideas, targeting planners, bankers, developers, and builders.

• **Web Surfers:** The animation that won first-prize in RECORD's Computer Delineation Award has been posted on the Internet (to view it, you need a web browser): http://sap.mit.edu/projects/mpp/mpp.html

• **HVAC and CFCs:** The phase-out of ozone-depleting refrigerants can cause hvac equipment-management headaches. Carrier Corp. offers a free 100-page handbook to help. Write Refrigerant Handbook, ACLS, Dept. 819-108, Liverpool, NY 13088. ■

Choosing Our Words Carefully

By Robert Spencer Barnett

Until the 1940s, drawing notes sufficed as a project specification. Today's weighty project manuals coincide not only with the information explosion of our age but also with expanded liability concerns and the realities of on-site labor skill. The gap may be widening between the tidy world conveyed by the specification text and the increasingly volatile reality of leapfrogging electronic documentation and evolving project-delivery methods.

Specifying risk

Ever-fatter project manuals are often driven by architects' fear that the slightest defect or omission may expose the specifier to liability. When editing office master specifications or proprietary master specifications like the Construction Specifications Institute's SPECTEXT or the far-more-voluminous MASTERSPEC (licensed by the AIA), there's a tendency to leave information in—in case it covers something the writer didn't anticipate—rather than edit it out. Such an approach leads to elaborate documents that sometimes defy rather than enhance contractor comprehension. "The biggest specification problem is saying too much," comments Jerry Farquhar, consulting attorney with CNA/Schinnerer, a professional liability insurer. "It infers a lack of coordination with drawings." An example? "Projects designed specifically not to have expansion joints that have a whole section on expansion joints." The needed coordination occurs, according to Farquhar, when firms create specs in tandem with drawings.

The specifier "walks a fine line between providing too much information and too little."—Kimball Beasley, Wiss, Janney, Elstner

Ann Fitzgerald, a principal at Richard Rauh Associates, in Atlanta, uses trade-association specifications as master specifications wherever possible, because subcontractors know what's in them and where to find information. "Many associations have a technical person I can use as a resource to work out issues in custom fabrication," she says.

Kimball Beasley, senior consultant at Wiss, Janney, Elstner Associates, an A/E firm specializing in engineering investigations, has examined over 700 failures in his 25-year career. He describes three areas where specifications are most often implicated in failures:

- when the documents are contradictory;
- when the designer specifies a proprietary system based on manufacturer's information without turning to independent sources to verify performance;
- specifying nonproprietary systems when compatibility with other systems is critical.

Beasley observes that the specifier "walks a fine line between providing too much information and too little." A tight specification can be seen as restrictive, intruding on the contractor's responsibility to control the "means and methods" of construction. On the other hand, specifications that lack latitude can shut out the expertise and talent possessed by custom fabricators of complex systems such as curtain walls. Fitzgerald, whose firm often designs special components within low-budget projects [like the O'Neal Cinemas, RECORD, January 1995, pages 78-81], specifies "strategically": "If I have a really special system—like specialty handrails—I'll do a separate ornamental-railing-system section, instead of including them under miscellaneous metals. By flagging it in this way, I tell the contractor to pay special attention." Fitzgerald will also name and list such specialty items on both drawings and specs.

A too-loose specification can open the field to possibly inferior products and installers. When it's the architect's word against the contractor's, a consultant with considerable forensics or failure experience, like Wiss, Janney, Elstner, or Arlington, Mass.-based Simpson Gumpertz & Heger, can advise on a system's past performance.

New-product dilemma

In finding the best way to respond to clients needs, architects must remain open-minded about new products. But little-tried or unfamiliar technologies create additional burden on the designer. Does the added value of the new product compensate for the additional evaluation effort? Do new technologies expose the specifier to greater liability? These issues become further complicated when the owner or the contractor is pressuring the architect to specify the product. "Th Contract Guide," by the DPIC Companies (a liability insurer), proposes that you "specify only products and technologies that you kno will do the job, that are time tested, and proven in a particular application."

This advice is certainly prudent, but innovation need not succumb to fears of liability. DPIC's advice in considering new products c technologies is, "Do your research. Your goa is to be able to demonstrate that you made a reasonable professional effort to explore the suitability and reliability of the product."

Here's what one firm did. The trustees of th Museum of Contemporary Art in Los Angeles asked Arata Isozaki, architect of its new building, to replicate the quality of light in the Louisiana Museum in Copenhagen, which the trustees (after a worldwide tour) deemed best for art. Gruen Associates, the executive architect, found that the skylight material, Okalux, by a German glass manufacturer, was primarily responsible for the quality of the light. Months of meetings with code officials, testing labs, fabricators, and contractors produced a specification for a product that was not only "sole source," but new to the U.S. market. The installation was a great success, and there were no claims. Not every project, nor every product, requires this level of commitment, but the German manufacturer created confidence b providing excellent technical support, including personal appearances by its owner at ke meetings.

Robert Spencer Barnett is assistant director of the Office of Physical Planning at Princeton University. He was formerly director of Design Technology at The Hillier Group.

ıctice trends, from risk management techniques and evolving
›ject delivery to electronic documentation, are altering the way
:cifications are—or should be—written.

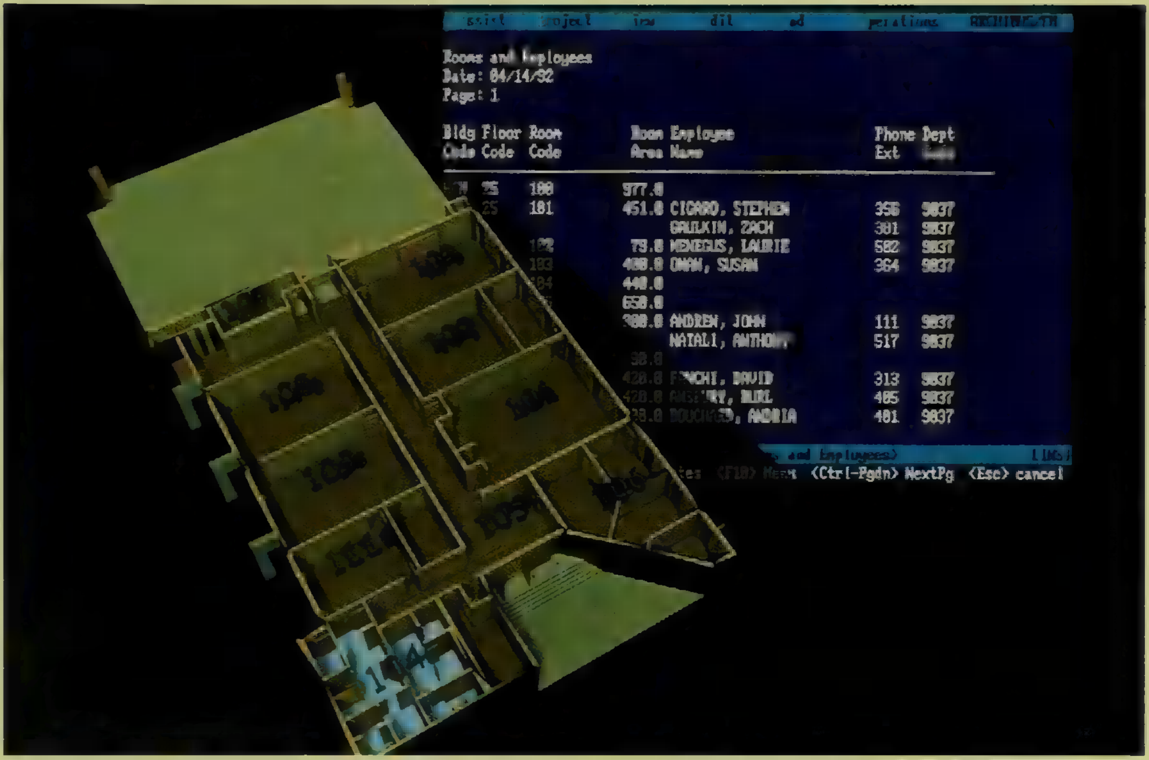
w project delivery demands new rules

nanufactured products replace handcraft-
›nes, ever more complete and detailed
uments have been required to maintain
lity control. But as owners have moved to
rnate project-delivery methods, docu-
ıts that are complete and fully
rdinated prior to bid and construction are
oming rarer.

s has led to a more fragmented specifica-
ı process. The "outline specification," also
wn as "design development" or "prelimi-
y" specification, is now more important:
a construction-management arrange-
ıt, it, along with the design-development
wings, is a contract document that
mits the establishment of a Guaranteed
ximum Price (GMP) through negotiations
h the CM.
hen a design architect is associated with
roduction or "executive" architect, the
line specification forms a "contract deliv-
ble," i.e., an instrument of service,
veyed to the succeeding design firm
ponsible for production of full construc-
ı documents.

outline specification is organized like the
ical full specification under MasterFormat
roduced by CSI in 1963), which classifies
tems by narrowly defined, product-orient-
sections within 16 divisions. (Master-
mat has gained almost universal accep-
ce in the building industry in North
ıerica.) According to Marty Bloomenthal,
ıd of the specifications department at The
lier Group, each outline section usually
ıtains a complete Part 2, in which products
described, as well as the quality-assur-
:e sections of Part 1 (General), but
ludes Part 3, Execution.

other departure from traditional proce-
e is the "preliminary project description,"
o known as a "narrative" or "schematic"
cification. It is fundamentally different
m MasterFormat. In 1992, CSI and Con-
uction Specifications Canada published
iformat, based on a British method of con-
ıtual estimating, which classifies
ormation under systems and assemblies
her than products. Its categories include
ıstructure, shell, interiors, and services.
iformat is well suited to early phases of a



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Archibus/FM shows the converging of specs, drawings, and facilities-management data.

project, where broad-scope documents are called for: design/build competitions and bridging arrangements, where an "owner's" architect is responsible for interpreting needs into a biddable combination of design drawings and performance specifications that then will be fully documented by a design/build entity. [For more on alternative project-delivery methods, see RECORD March 1995, pages 30-35.]

The tradeoffs of such arrangements must be fully understood. For every aspect of the project that is not under the control of the design practice, there is opportunity for error or misunderstanding. On the other hand, the division of responsibility between design and detailed documentation can put specification of each system and component in the hands of those who do it best.

When in Rome . . .

American architects working abroad find that many tasks performed by full-service architects in the U. S. are done in other countries by other entities. In the Far East, observes Fred Clarke, a principal at Cesar Pelli & Associates, the architect delivers construction documents that correspond to the completeness of design-development documents in the U.S. International contractors with imported crews usually construct major projects in developing countries such as Malaysia and Indonesia, and they tend to work out many of the design details in the construction phase. Changes and substitutions are commonplace.

This apparent lack of quality control may be troublesome to those accustomed to the more rigorous practice here in the U.S. Clarke responds that one must be aware of and accept the different construction culture of other countries. Second, his firm produces more complete and more specific design-development documents for use by the local architect. Pelli's design specifications for foreign projects are comparable to full specifications for domestic ones, he says. Third, the expected level of quality must be communicated to the foreign members of the team from the beginning. (Others have commented that contractors outside the U.S. often have good skills in the often more limited technologies available, meaning the architect's documents do not require the specificity they need in the U. S.) One technique to achieve consensus on quality and goals, Clarke says, is to invite staff from the local architect to work side by side in the office of the U.S. firm during the design phase. "The infusion of expertise is well received," and there is a "genuine transfer of technology," he says.

When what's called for isn't supplied

Manufacturers increasingly claim that architects in the U.S. fail to defend the products they specify. It's not just the "or equal" clause required by public-sector procurement procedures; it's even the traditional proprietary specification, in which products are named. Today clients often ask that every specification section contain a list of alternate acceptable manufacturers.

This open attitude troubles some manufacturers, especially ones that offer unique products or have a large market share. These companies typically commit resources for research, marketing, and technical support—which benefits architects and specifiers. Such interaction is often critical to a properly designed and fully coordinated set of documents. When, after committing time of sales reps and technical staff to a particular project, the manufacturer sees an architect succumb to the pressures of other suppliers pitching supposedly comparable quality for a lower price, it's no wonder they see assisting architects as not in their best interest.

As owners have moved to alternate project-delivery methods, documents that are complete and fully coordinated prior to bid and construction are becoming rarer.

The collaborative process that is the key advantage of bridging (versus the adversarial approach of design-bid-build) allows the incorporation of a specialized or clearly superior product as long as overall project goals and budgets are met. Another method of conveying the designer's preference for a product is a type of proprietary specification called "basis of design." For example, an architect may choose to detail and specify a product based on the requirements of a particular elevator manufacturer. Hoistway clearances, structural members, electrical capacity, and so on, are designed to accommodate these unique requirements. To maintain competition in the bidding phase, the specification also lists alternate acceptable manufacturers. To level the playing field, the specification stipulates that the alternate manufacturers must include in their bid the cost of any design modifications required to accommodate the alternate product.

For some products, a proprietary spec can still benefit from price competition. As Steven Collins, Vice President for Marketing at Dryvit Systems, Inc., observes, the material cost in a system such as EIFS is a small percentage of the installed cost. By bidding among acceptable installers, the owner still receives the specified quality at the best price. For certain products or systems, though, owners simply must accept the fact that premium products, which often have no equal, require a premium price.

In the public sector, and increasingly among private clients, the reality is the non-proprietary spec, which Fitzgerald, of Rauh's office, says is often the only way to get projects in on budget. "To get the best result under these circumstances," she says, "You have to work out final details when you know who is supplying." Shop drawings and submittals are used to verify that spec requirements are met, and documents clearly spell out the contractor's obligation to coordinate related work (without a change order) so that the selected component fits in the overall assembly. "We've found this very enforceable," says Fitzgerald.

Product data goes electronic

Until recently, product data was available only in print, with Sweet's catalog being the most widely used resource. Now Sweet's, the Construction Specifications Institute's SPEC-DATA, and even manufacturer's information and details are available on disk and CD-ROM. Mark Kalin, Director of Specifications at AI Master Systems, predicts that specification will be available on-line once the cost becomes competitive with CD-ROM. On-line access permits users to obtain updated info mation as soon as it's available, rather than waiting for the quarterly updates ruled by the realities of print or disk publishing. Today, AIAOnline users can access MASTERSPEC product evaluations. E-mail will increasingly offer an economical and speedy means of receiving product information or updates directly from manufacturers, but w not likely supplant face-to-face conferences with manufacturer's representatives. Accor ing to Kalin, data obtained electronically is useful in the early stages of research, but when the architect and specifier are studyin the application of a product to a particular project condition, working meetings with a manufacturer's representative are essential

Embedding electronic expertise

To improve quality, many specifiers have turned to proprietary master specification systems, which contain the accumulated wisdom of many experts, and which can be edited to suit each project. MASTERSPEC an SPECTEXT are the two most common guide specifications available.

Recently developed electronic alternatives embed even more expert knowledge. MASTERSPEC Q&A, which came out of the CD ROM-based SweetSpec and SpecSystem, has been available for 10 years and claims over 400 subscribers. The specifier is prompted t make a series of choices for each section, the Q&A edits the full text to generate a specification tailored to the selections made. The specifier can examine an "audit trail" of choices made, either to verify that decisions were correct or to alter the spec to reflect changed requirements.

Another product, COMSPEC, shown at this month's A/E/C Systems '95 computer exposi tion, will use a similar method, but also selectively displays the text that will be affected by responses to queries (info: 404/876-4700). With COMSPEC, you may select any part of the spec to work on, beginning, for example, with the products section, rather than Part I requirements. As the spec ifier makes product selections in part 2, the

'tware generates coordinated edits in Parts
nd 3, as well as in related sections.

oving from documents to databases
MSPEC, which will be on the market in
ly 1996, and similar products are intended
lay the foundation for the integrated elec-
nic documentation that visionaries see as
imately replacing separate drawings and
ecifications. According to Robert Dean,
ose company, Building Systems Design, is
oducing COMSPEC for the Construction
iences Research Foundation (CSRF), the
oduct "focuses on the project, not a docu-
nt." It will be, says Dean, a "family of
ked applications" in which CADDLink, will
otify" a related electronic drawing of speci-
ations choices, and vice versa. CostLink
ll send data to Building Systems Design's
imating products. The key element is a
ntral module" called ACES (for Adminis-
tor for CADD, Estimating and
ecifications).

ncSpec, from ARCOM (Architectural Com-
ter Services, the new licensed producer of
STERSPEC), is another new product
ended to electronically attach drawings to
ecifications. (A demonstration version will
released this summer. Info: 703/684-9153).

the border between drawings and specs
urs, experts want you to consider the docu-
ntation as a single database that more and
re people can access in ways that suit
eir needs. CAD drawings already permit
e ability to cut a section through a building
erever the user chooses. The database
taphor simply expands such possibilities.
s not hard to imagine elevator companies
sking" the database to supply the specifica-
n text as well as a section through shafts,
ile a skylight manufacturer (not the archi-
ct) slices only through the project's atrium.
stead of receiving "a set" of structural
awings, a steel fabricator might simply
ery the database, which may soon be able
generate the drawings and text informa-
n according to the criteria the fabricator
ts out. The database may also be able to
nerate cost estimates and facilities-man-
ement reports. And as standards fall into
ace, the documentation will remain "live,"
cessible and updatable for the life of the
ilding.

Such a convergence of documents has obvious benefits in production efficiency and quality control (coordination particularly). It is already opening the way to a different conception of architectural services, one in which the "deliverable" is not a set of documents marking an end point to a design process, but the beginning of a set of building-information services provided by the architect to the owner. Whether the traditional design firm evolves into such a service entity, the new models of documentation certainly herald altered relationships among members of the design and building team.

Edward Smith, who holds an architecture PhD as well as being President of ARCOM, has established the theoretical basis for this revolution in a paper titled, "Virtual Buildings: Knowledge Based CAD Models." His vision is of a "three-dimensional, computer-based modeling system, coupled with a knowledge base containing a complete description of all of the building components, their properties and relationships."

Another pioneer is ARCHIBUS, Inc., president Bruce Forbes, who holds advanced degrees in both architecture and computer science, and is the leading producer of computer-integrated facilities-management (CIFM) software. Forbes illustrates the power of CIFM by this example: after discovering corrosion in a roof drain at one location, the facilities manager locates—through the database—all the other company facilities built the same way, and orders preventative maintenance.

All of the convergence described above builds on commonly used software. It also takes advantage of widespread acceptance of MasterFormat and the pioneering efforts of Jim Freehof and Duke Guzey, who developed the master keynoting system for drawings called ConDoc. Future development will depend on advances in object-oriented programming systems (which help such systems recognize what is to be linked) and acceptance of a common nomenclature for building components. Practitioners have reason to be intrigued by these developments. But, as Hillier's Marty Bloomenthal observes, "With technology, anything is possible, but not everything will happen." ■

Specification Systems

MASTERSPEC
Comprehensive, editable text specifications, updated quarterly, are arranged in the 16-division Masterformat style. Basic sections and specialized supplemental sections are offered. Product evaluation sheets, which are also available on AIAOnline, help the specifier make appropriate decisions.
- *Vendor:* AIA Master Systems, 332 East 500 South, Salt Lake City, UT 84111 (800/424-5080).
- *Pricing:* $730 covers the basic library ($830 more for diskettes). Supplemental sections can be purchased individually or as a set.
- *Format:* Hard copy and diskettes or CD-ROM, which are available formatted for most popular word-processing programs.
- *Related products:* Short-Language Version oriented to simpler projects MASTERSHEET-SPEC for small projects; an outline spec, for the schematic-design phase; MASTERSPELL, for construction terminology; MASTERSPEC Q&A, which "writes" the spec according to choices made by the specifier.

SPECTEXT
This system is prepared by the Construction Sciences Research Foundation for the Construction Specifications Institute. Offered by subscription and updated quarterly, it has more than 1,000 users. Over 450 sections are available in 16-division Masterformat. SPECTEXT II is suited to smaller, simpler jobs.
- *Vendor:* Construction Specifications Institute Orders Department, 601 Madison Street, Alexandria, VA 22314-1791 (800/689-2900, 703/684-0300). For electronic versions, Construction Data Services (800/235-3515).
- *Pricing:* Varies according to versions ordered; electronic versions are higher and non-member prices are higher.
- *Format:* Hard copy and diskettes or CD-ROM formatted for most popular word-processing programs.
- *Related products:* The CSI *Manual of Practice*, guidance in writing project manuals; SpecGUIDE, evaluation information for specific sections and MANU-SPEC, produced by manufacturers for specific products following CSI guidelines. ■

Evanescent Architecture

Much of the American innovation in curtain walls and cladding systems has been developed in the process of designing skyscrapers. With this market ailing, architects have had to find different kinds of projects in which to push the state of the art. Jörg Schlaich, the engineer who developed the cable-net curtain wall for Munich's Kempinski Hotel, notes that it took courage on the part of the owner and design team to accept the notion of a wall that can flex more than three feet. Steven Nilles, of Murphy/Jahn, credits a dedicated and enthusiastic building team for successfully realizing the solution. (The project offers other technical innovations, too. Because the grand atrium is regarded as a transition space, it is minimally heated through a radiant floor and only partly cooled, permitting use of single lights of laminated glass rather than the insulating units codes would otherwise have called for.)

Michael Flynn, at Pei Cobb Freed, likewise credits a team that included the legendary (and recently deceased) engineer Peter Rice. Also, the client agreed that the inverted pyramid, though only a tiny part of the vast Grand Louvre project, deserved the effort required to realize the design team's ingenious and sophisticated idea.

While the two architects represented here are both American, the fact that both projects shown are in Europe is not a coincidence. In most European countries the government and the private sector offer much greater support to architecture, not just as a means of developing new technologies, but as a cultural endeavor. Neither of the projects shown here could be considered low-budget. Nor do they point cladding technology in a widely adaptable new direction. But innovations that genuinely advance the state of the architecture art have often come from an open-ended search driven by both esthetic and technical imperatives. Fewer American clients see themselves as patrons of architectural [illegible]. Government, too, appears [illegible] more willing to sacrifice civic quality [illegible] to budget exigencies. [illegible] the case to [illegible] to sponsor innovation [illegible] in America. But we [illegible]. James S. Russell

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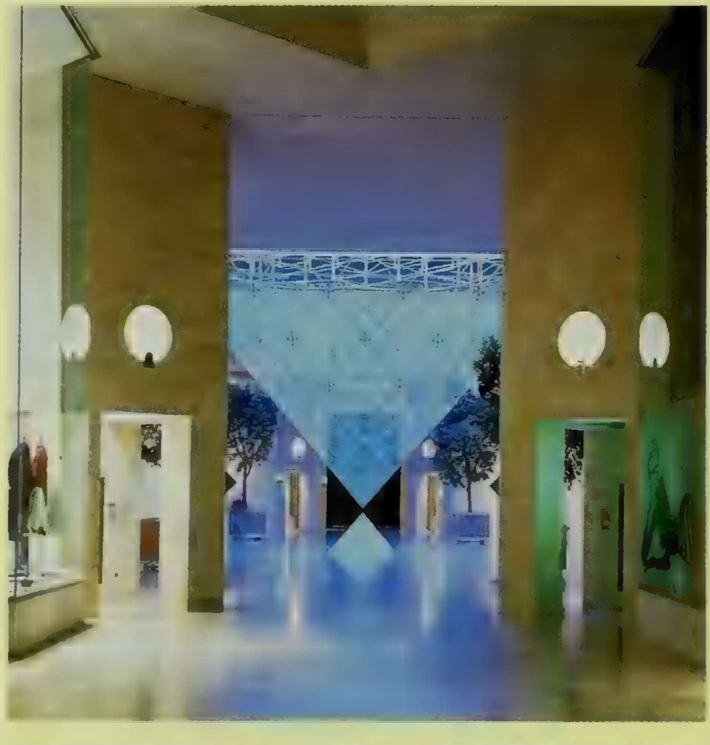
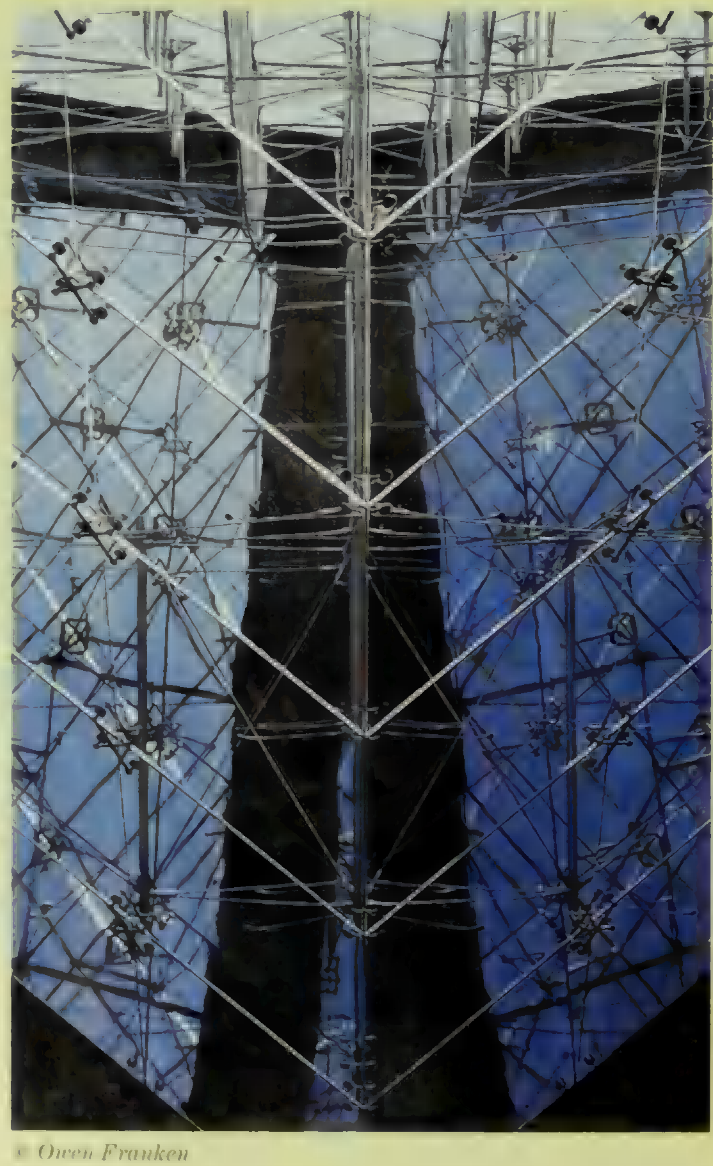




© Owen Franken

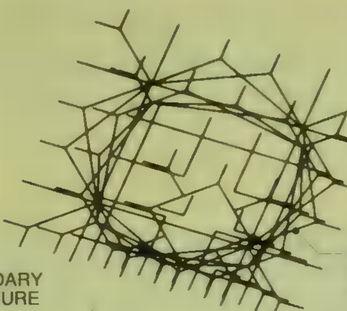
Inverted Pyramid
The Louvre, Paris
Pei Cobb Freed & Partners, Architect

It's not just the gravity-defying nature of this glowing crystallin structure that turns heads, it's also its apparently weightless an hardly visible support (left). The inverted pyramid's structure is, i anything, even more refined and sophisticated than the nearby "Grand Pyramid" entrance I. M. Pei designed for the Louvre [RECORD, May 1989, pages 142-149].

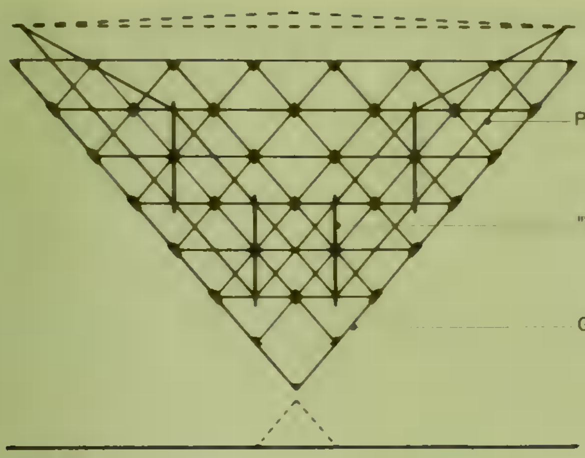
Part of phase II of the Grand Louvre project, which included extension of the underground entrance concourse and restoration of the Richelieu wing, this pyramid draws natural light down to mark the meeting of two axes, one from a garage and one from a Metro station.

To make this pyramid's supporting structure as ephemeral as possible, Pei Cobb Freed collaborated with Henry Bardsley and the late Peter Rice of the Paris engineering firm RFR. The base of the pyramid, structurally separate from its suspended sides, is silicone-glazed roof, sloped almost imperceptibly up to its center for drainage. The corners of the clear, tempered, and laminated glass panels rest on pads atop square metal rings (photos, following pages). The rings convey the roof's weight down through short vertical compression posts, which are held in plac by tension cables that convey loads to steel beams at the edge of the roof opening (section opposite).

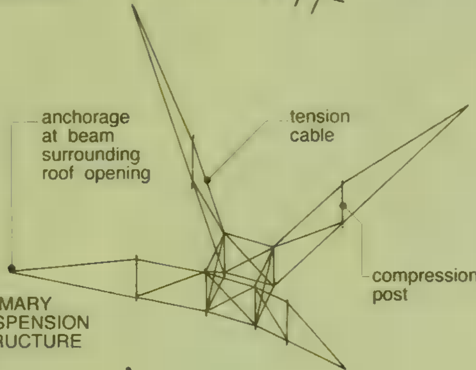
The suspension of the pyramid faces is far more complex. The primary structure is what RFR's Dan Burr calls a "virtual cube," *wo architect and engineer teams, using radically different solutions, we devised glass-wall supporting structures of a lightness at seems magical.*



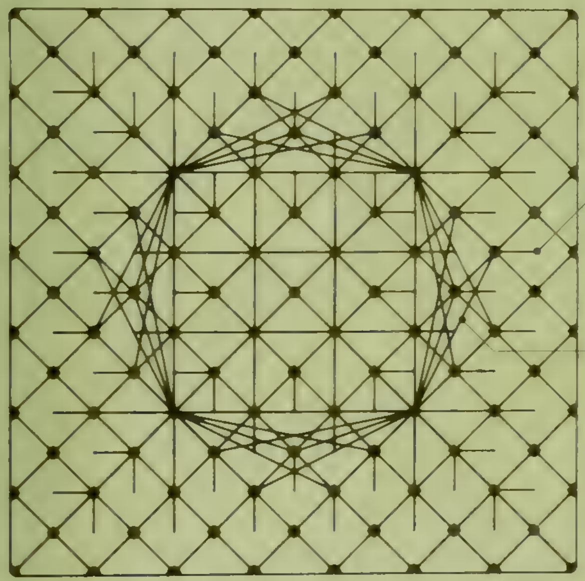
SECONDARY STRUCTURE



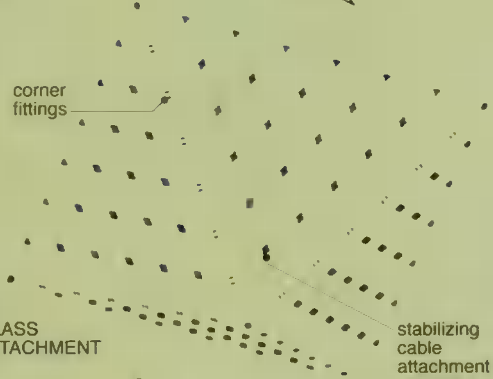
ELEVATION



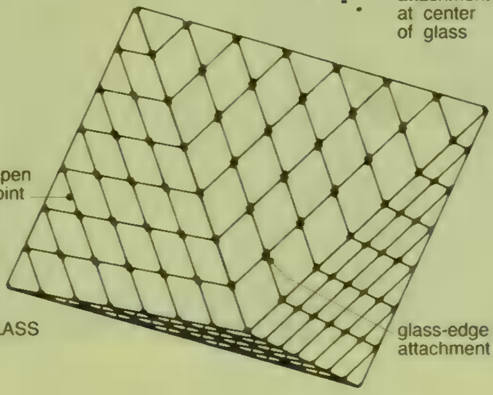
PRIMARY SUSPENSION STRUCTURE


Cables carry tension loads to fittings at center of glass
Stabilizing tension cable

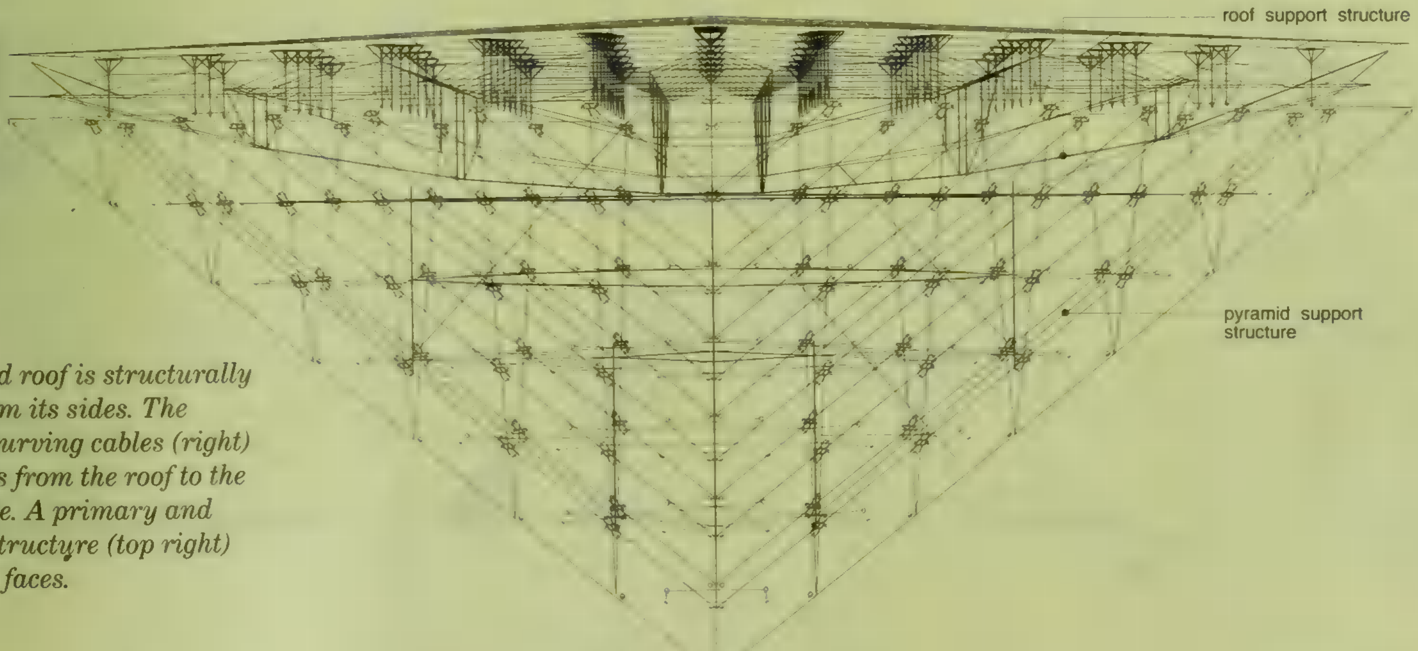
PLAN



GLASS ATTACHMENT



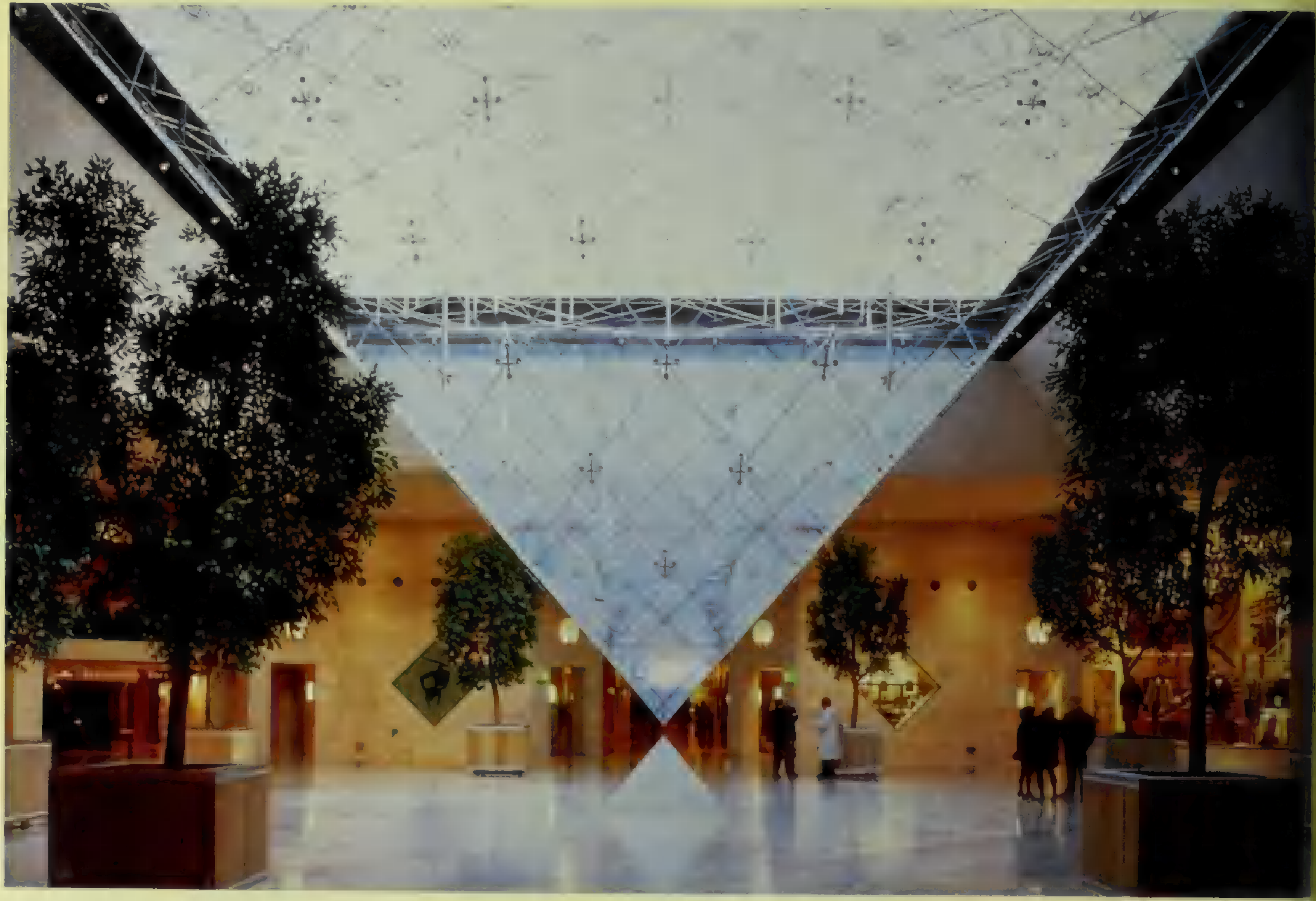
GLASS

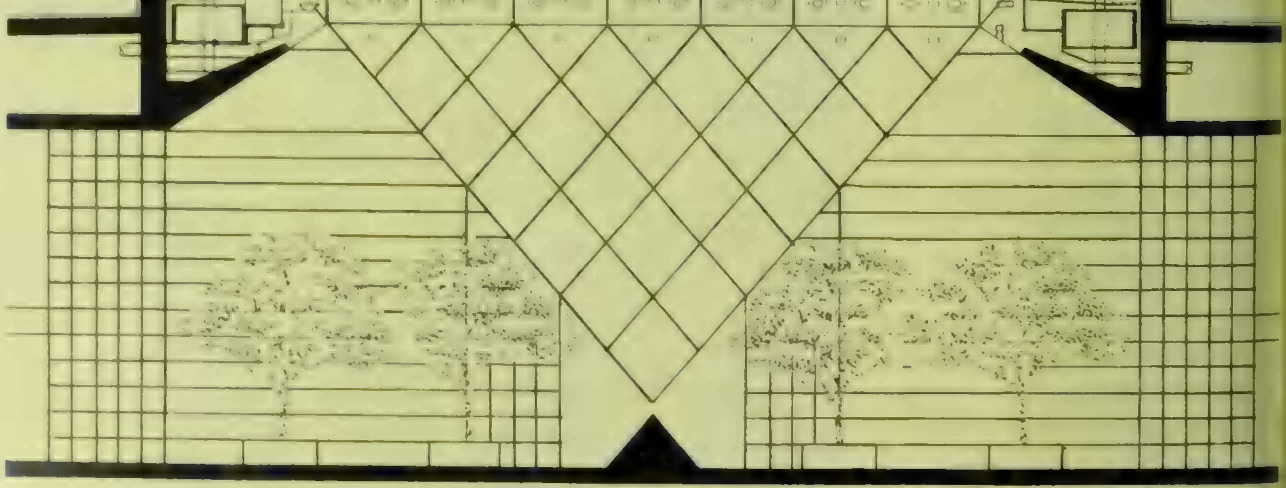


SECTION

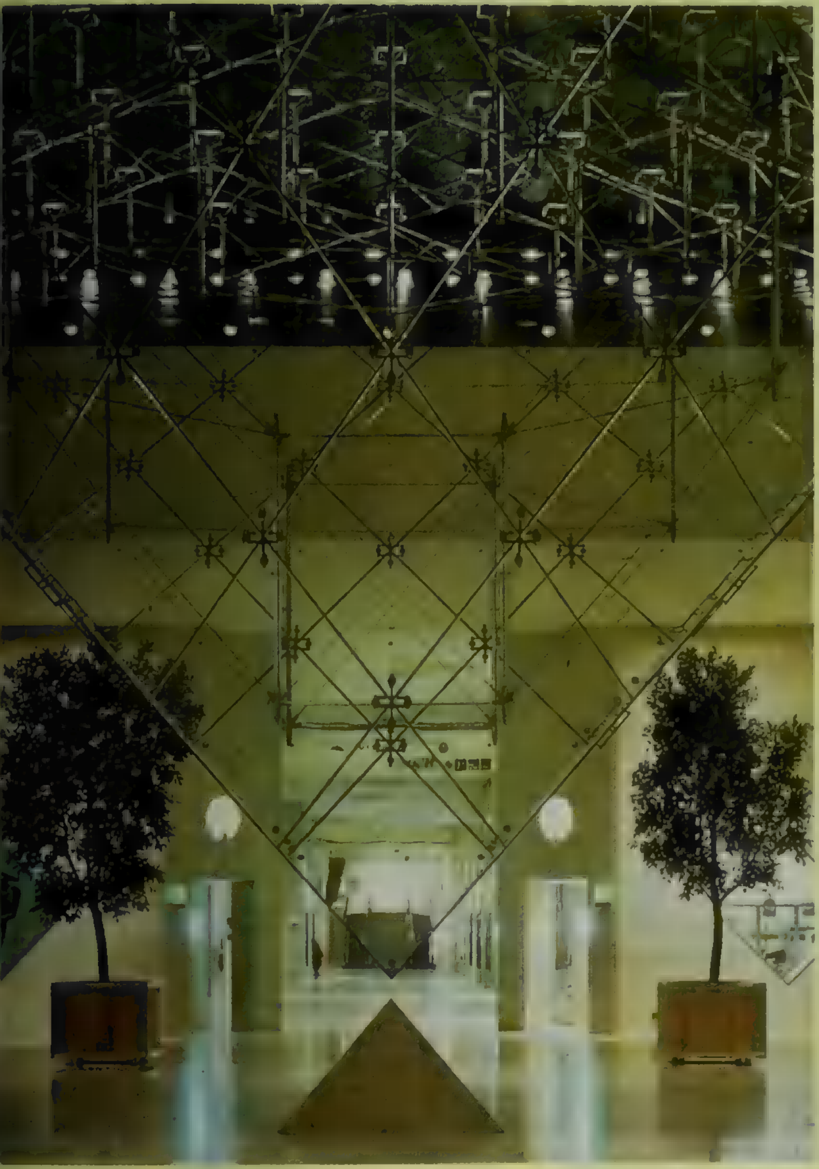
he pyramid roof is structurally parate from its sides. The wnward curving cables (right) nvey loads from the roof to the ening edge. A primary and condary structyre (top right) spend the faces.

The Louvre's inverted pyramid's structure is, if anything, even more refined and sophisticated than the nearby "Grand Pyramid" entrance I. M. Pei designed for the project's first phase.





A heavy steel beam surrounding the roof opening supports the inverted pyramid and houses lighting and a low-velocity air supply that limits condensation and dust accumulation(right). The square pads that support the roof glazing are most visible in the opposite top photo; the cross-shaped attachments (opposite left) fasten adjacent panes of the pyramid's suspended faces, but loads are actually carried to the primary structure by cables attached at the center of each light. [illegible] pins (opposite right [illegible]) [illegible] connections to the [illegible] pads within the [illegible] steel tube.



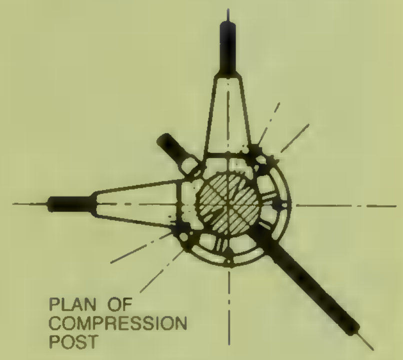
held in place by cables attached to the edge beams (axonometric sequence previous pages). The secondary structure is a web of nearly invisible cables that stretch horizontally from the cube's vertical posts to the centers of the pyramid's lozenge-shaped glass panels. The fittings at the glass corners (bottom left) convey gravity loads from pane to pane and keep adjacent panes aligned. The weight of glass faces on opposite sides keeps the horizontal cables in tension. Beveled glass edges in open joints refract light in ever-changing patterns. The bottom glass sections are removable, permitting staff to place a special jig inside the virtual cube for cleaning the pyramid's interior.

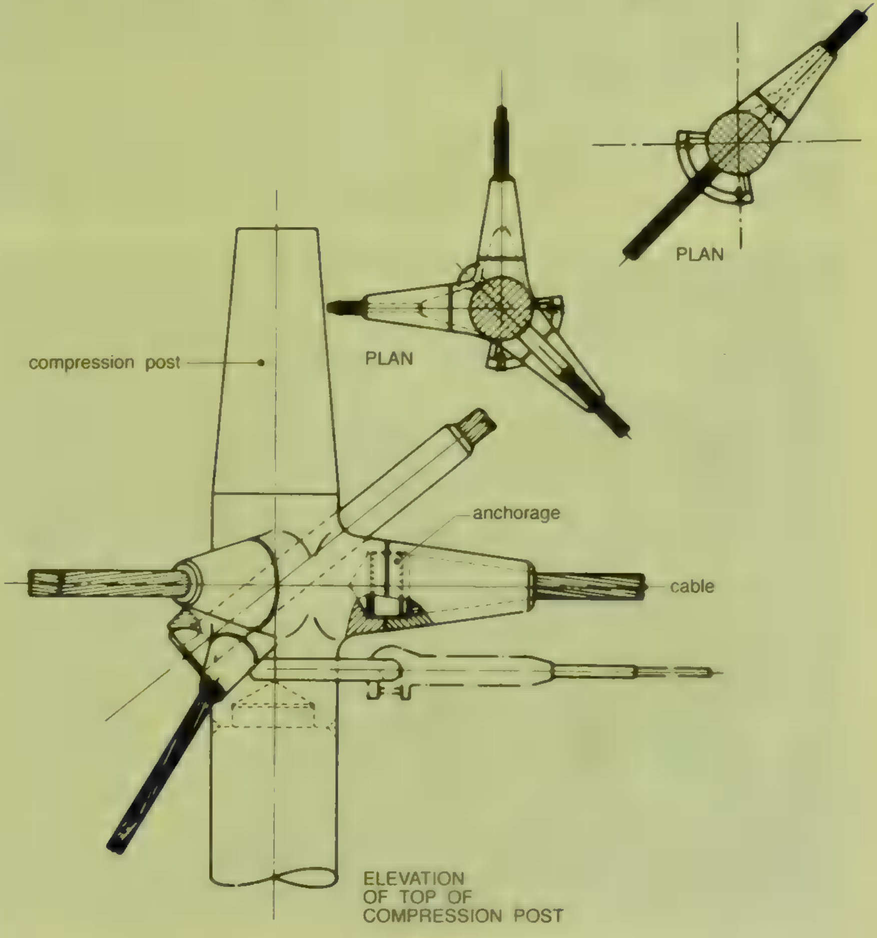
Credits

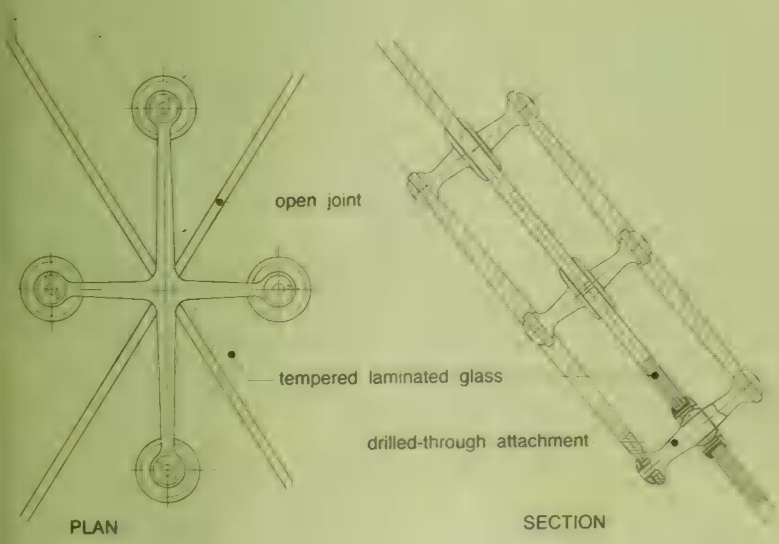
Architect: *Pei Cobb Freed & Partners—I. M. Pei, design partner; Leonard Jacobson, management partner; Michael D. Flynn, technology partner; Yann Weymouth, Stephen L. Rustow, C. C. Pei, Andrzej Gorcynski, Claude Lauter, Verie Boom, David Harmon, Masakazu Bokura, Robert Crepet, Madeline Fava, Marco Penenhoat, Matthew Viderman, Jean-Christophe Virot, design team*

Engineer: *RFR*

Contractors: *Bouygues (general); Viry/Dutemple (skylight structure and glazing)*


PLAN OF COMPRESSION POST





The spectacular atrium at the Kempinski Hotel displays an array of glazing techniques: structural glazing in the roof, a suspended, cable-supported wall, and a conventional aluminum-and-glass wall.

Kempinski Hotel Munich Murphy/Jahn, Architects

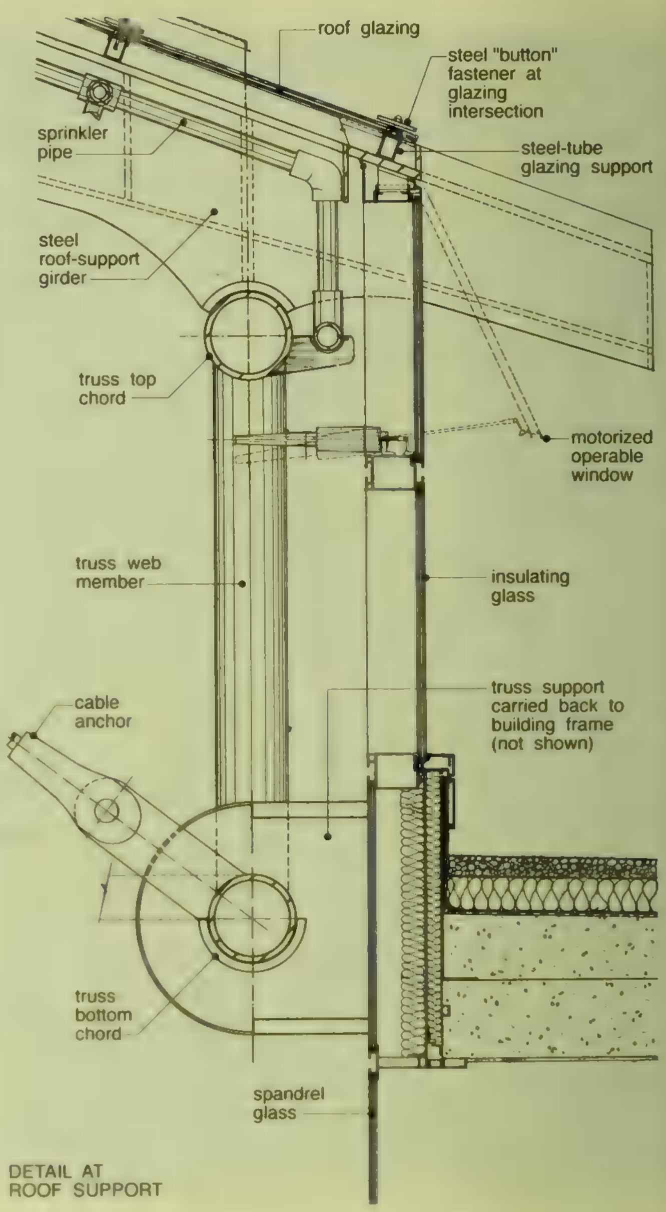
There were two distinct design and engineering challenges at the Kempinski Hotel: The glass and steel roof spanning the 135-ft entrance lobby and the cable-suspended glass wall that encloses the lobby's "open" ends. (The wall is so ephemeral that you have to look hard at photo 1, opposite, to see it.)

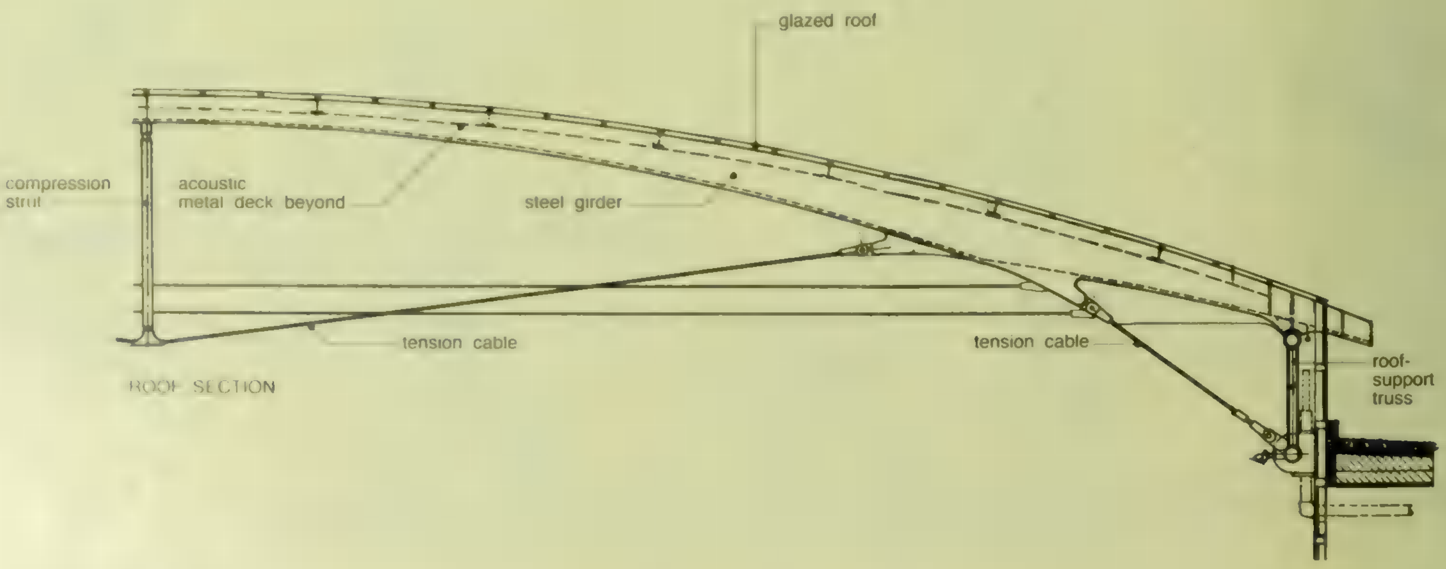
The first stage of a planned 3-million sq ft commercial complex connected to Munich's new airport [RECORD, April 1992, page 40-43], the hotel's grand atrium is conceived as more than a lobby or lounge; it's seen as a gateway to the city and a place where business meetings are augmented by shopping, entertainment, and cultural events.

The arched steel roof supports are plate girders, though the trusslike tension rods reduce the needed depth (bottom). The arches spring from a horizontal tubular truss (3) rather than directly from the building structure. The loads on the truss counterbalance the roof's cantilevered end. The truss visually separates the roof from the building wings (right). The skylight is framed of tubular steel welded in a 1m (3.25-ft) grid. A premolded, extruded-neoprene gasket with integral gutter sits atop the framing, supporting the glass. The glass is held in place by round stainless-steel buttons, bolted to the frame at the corners between the glass lights. Silicone weatherseals the joints.

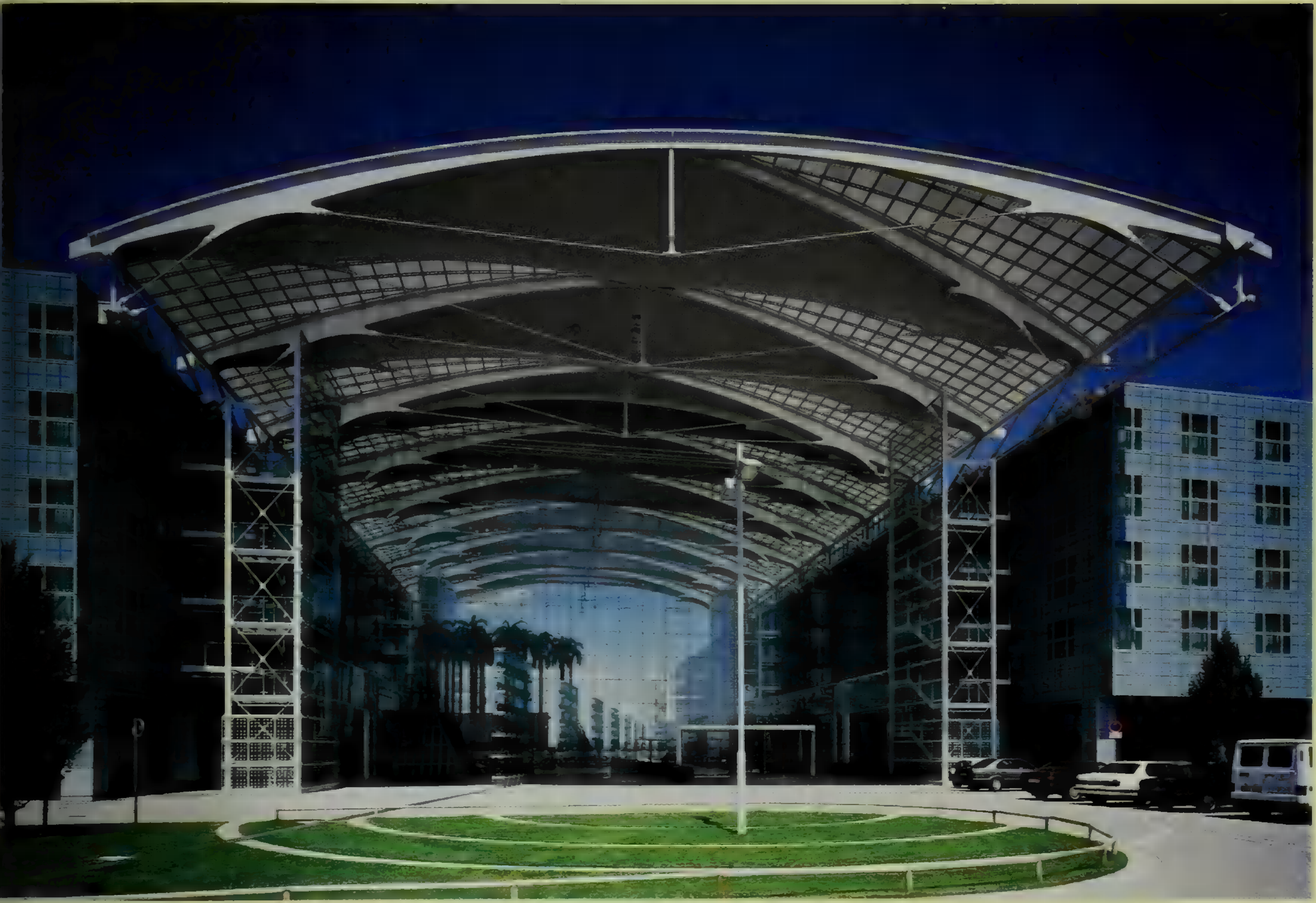
Each of the skylights was preglazed and shop-fabricated in three large pieces, which were craned into place.

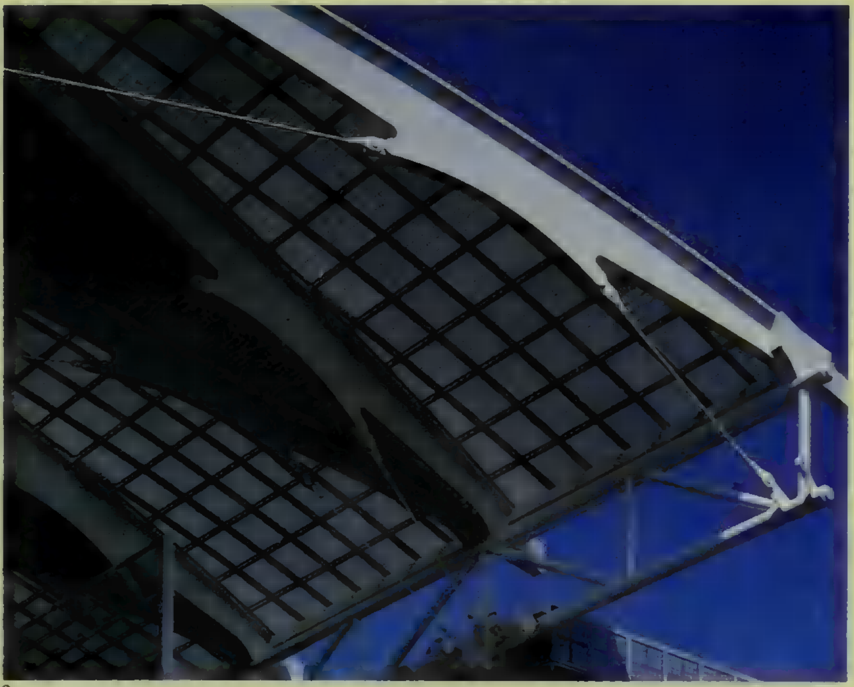
The Kempinski Hotel's greatest innovation is the easiest to overlook. Stuttgart-based Jörg Schlaich, the structural engineer called in to consult on the steel construction, says Helmut Jahn's earliest sketches of the great hall's glass end walls called for a "jungle" of supporting structure. Schlaich suggested that the glass


roof glazing
steel "button" fastener at glazing intersection
sprinkler pipe
steel-tube glazing support
steel roof-support girder
truss top chord
motorized operable window
truss web member
insulating glass
cable anchor
truss support carried back to building frame (not shown)
truss bottom chord
spandrel glass
DETAIL AT ROOF SUPPORT



Engelhardt/Sellin, Aschau i. C.H. photos except as noted





3

Suspended by a cable net, the end walls of the Kempinski Hotel's atrium are nearly invisible.

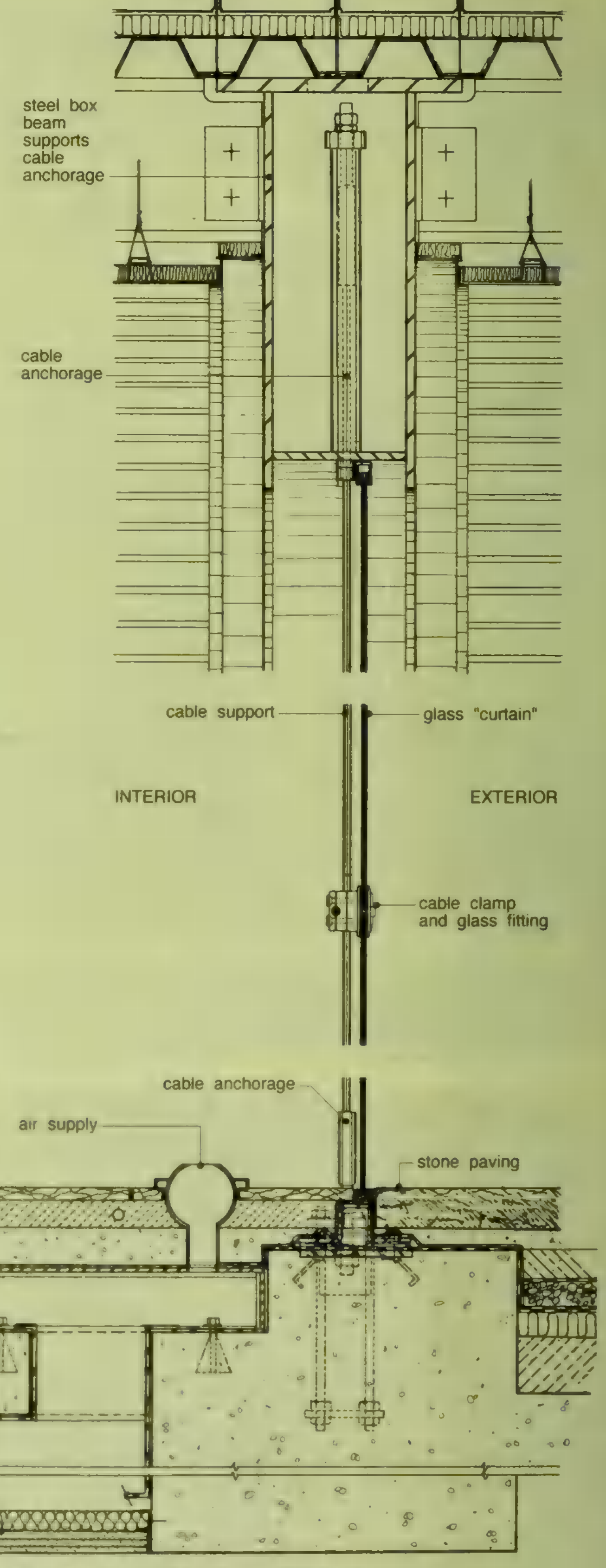
supports could almost disappear if the glass panels were hung from a cable net. (Schlaich's previous cable structures range from cooling towers to pedestrian bridges. In the U. S., he has worked with glass artist James Carpenter and on Boston's not-yet-built Charles River crossing.)

Urged by Jahn to proceed, Schlaich devised a network of tensioned vertical and horizontal cables aligned to the grid of the 5-ft-sq glass panels. At cable intersections, cross-shaped stainless-steel buttons bolt together the cables and channels that accept the corners of the glass panels (drawing right). A similar means is used to glaze the decorative "geranium walls" (4, 5) though structural support comes from glass panels placed at right angles to each other rather than from cables.

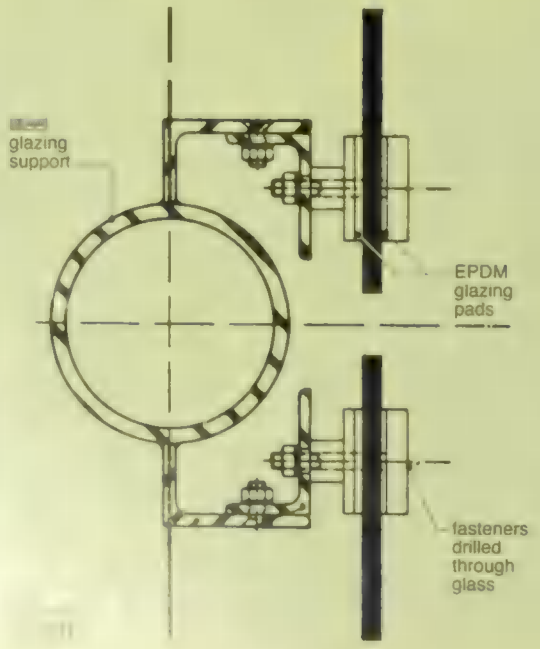
The vertical cables accept the wall's gravity loads; the horizontal cables are stretched to take the wind loads. The wall is still unusually flexible, designed to deflect at midpoint as much as 36 in.! To accommodate such movement, the entrance doors have an outer frame that moves with the wall. (The bottom rotates.) An inner frame fixes doors.

The wings of the hotel are conventionally clad in aluminum framing and clear, ceramic-frit-patterned, and ceramic-opacified glass, laminated to reduce jet noise. The exit stair located outside the lobby (6) is glazed in panels using a drill-through fitting to a steel frame (bottom drawing). Because it is an exterior stair, codes didn't require that joints be sealed. *J. S. R.*

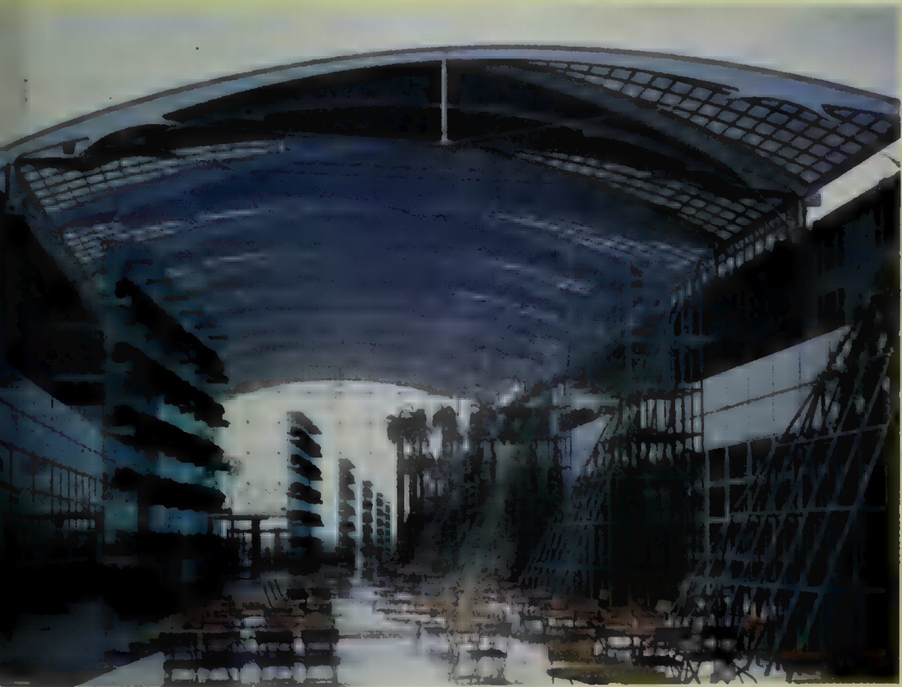
Credits
Architect: *Murphy/Jahn, Inc.—Helmut Jahn, Sam Scaccia, Rainer Schildknecht, Steven Cook, Steven Nilles, Lothar Pascher, Antonio A. Pelipada, John Myefski, Richard Ehlert, team*
Engineer: *Schlaich, Bergermann und Partner (steel)*
Contractors: *Hinteregger/Heinemann (general); Helmut Fischer GmbH (cable-net wall); Josef Gartner & Co. (aluminum and glass curtain wall)*



SECTION THROUGH CABLE-SUSPENDED WALL



'acade Gartner



6

CAD cum Database: High-End Macintosh and Windows CAD

By Steven S. Ross

This month we look at two high-end CAD packages that are particularly distinguished by their hooks to outside databases and their internal data-tracking capabilities. They are also good production-drafting tools.

MicroStation Version 5 brings this package to the Macintosh and Power Macintosh platform more than a year after the Windows/Windows NT version shipped. However, the wait was worth it. Version 5 is not really Mac-like (it uses Unix Motif or a Windows-like interface—you choose) but it is clearly the most powerful high-end CAD package available on the Mac platform. It also proves to be surprisingly nimble in Power Mac incarnation.

We paid close attention to how well you can move files back and forth between MicroStation (which includes some modeling tools) and Macintosh ArchiCAD (which is more a modeling package strong in everything except drafting). Using the Autodesk DWG format worked well, but so did the technically more crude DXF.

The second package, Drawbase for Windows 1.2, operates in a much more crowded field, Windows CAD. Its producer, CADworks, has opted to play up the Drawbase data hooks in the facilities management market—a niche that it can, with luck, dominate. Again, it exchanges drawing files well with AutoCAD—using the popular DWG library originally developed by Sirlin (itself an Autodesk subsidiary for the past year or so). Thus, you can design in AutoCAD or MicroStation, or other packages, and use Drawbase for managing the project once it is completed.

MicroStation Version 5 for Power Mac

Vendor: Bentley Systems, 690 Pennsylvania Dr., Exton, PA 19341, 610/458-5000, fax 610/458-1060, 800/778-4274, (http://www.bentley.com) Web page.

Equipment required: Power Mac with at least 8MB of RAM (24MB or more recommended, at least 12MB for full rendering). There is also a version for 68030 and 68040 with math coprocessor. All versions require System 7. Can be used with digitizer (preferably, APD-standard) or mouse.

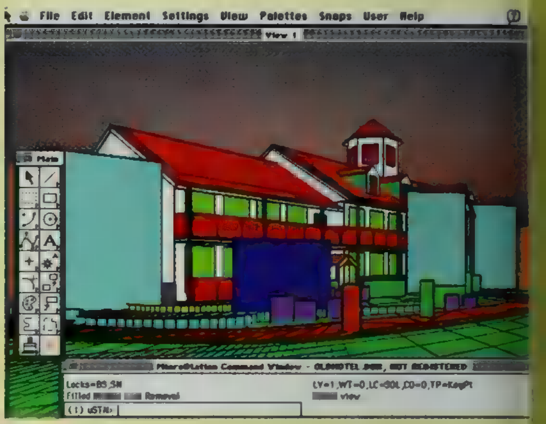
Price: $3,950. Upgrade from AutoCAD, VersaCAD, ClarisCAD, and MacBRAVO!, $1,500. Free for registered users of 68030/68040 Version 5.0 and subscribers of MicroStationCSP support program who have any version, even non-Mac versions. $150 for Version 4 Mac users and $750 for users of earlier versions, through June 1995

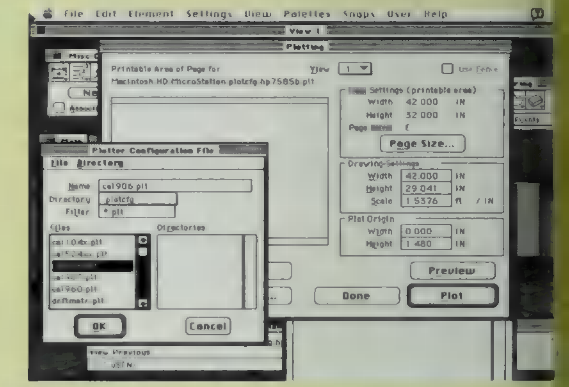
Bentley Systems has released a Power Macintosh version of MicroStation Version 5, confirming its commitment to the platform. The new release does not offer the advanced interface of PowerDraft 5.5. Indeed, its interface is not all that Mac-like—it is Windows or Motif-like (your choice). And it comes more than a year after Version 5 was released for the Windows and Windows NT platform.

But Mac users should find it comfortable, and a clear upgrade path from less powerful (and often slower) Macintosh CAD packages. There's no competition from Autodesk on the Mac; AutoCAD 13 will not ship in a Macintosh version.

We tested it on a Power Macintosh 8100 with 24MB of RAM, where it runs fast enough to handle production-drafting chores with ease, and on the slowest possible Power Mac, a Centris 610 upgraded with a 40 MHz Power Mac board and only 8MB of RAM. That's too slow for all but simple and emergency tasks. It runs, but not at a comfortable speed. We couldn't do fancy Phong shading at all. Upgrade to 20MB, though and, if you mainly work in 2D, the speed is passable.

If you have a Power Mac, you will certainly want to upgrade from Version 4—this versio will run much faster, and the interface is more productive. In fact, it would be considered near-revolutionary, except that Bentley Systems has already improved upon it, for Version 5.5 PowerDraft (and soon, for MicroStation 5.5) for Windows.





Printable Area of Page for Macintosh HD MicroStation plotcfg hp7585b plt
View 1
Settings (printable area)
Width 42 000 IN
Height 32 000 IN
Drawing Settings
Width 42.000 IN
Height 29 041 IN
Scale 1 5376 ft / IN
Plot Origin
Width 0 000 IN
Height 1 480 IN
Name cal906 plt
Directory plotcfg
Filter * plt

Top: On the Microstation V.5 for the Mac, a shaded image of this size appears on screen in a minute or so on a slow Power Mac.

Above: Plotter settings, among the many pr ductivity tools for handling text and data.

Aside from a simplified menu structure and "sticky" menus (you can drag, click, drag instead of Macintosh-style drag-drag-drag), workspaces can be customized by project. (The process is somewhat similar to the Nexus add-on to Version 4.) And there's linestyle customization, associative hatching and patterning. You define an area by clickin within it, rather than tracing around it.

You now get Boolean operations, better tools for trimming lines, plot preview, dimensioning, symbol libraries, and so forth.

Import and export of AutoCAD DWG files is *icroStation Version 5 is the "most powerful high-end package for ɜ Mac platform." Drawbase for Windows is "strong in its ıderlying database links, but we have a major gripe."*

ɪy, with good control of specific items such blocks and fonts, and of referenced draws that may be missing when the nslation takes place. There's also translan to and from DXF, IGES, and CGM.

ere are excellent database links to all the ndard spreadsheet and database packes, including Informix, Oracle, and xBase. ı can also attach data to specific elements a drawing by "tagging" them, without an ernal database—and you can manage sets ags throughout a drawing set. The tag s are themselves a database that can be itten out to a CSV file for importation into spreadsheet and database packages.

etty much all of this, however, can be dupliɪed in simpler packages on a Macintosh, luding separate 2D and 3D drafting and deling. MicroStation may offer more flexiity or capacity, of course, but not everyone s to push its features to the limit. Why, en, go with MicroStation? First, the final rk product can be sent to MicroStation or werDraft on any other platform—there's en compatibility with I/RAS raster files. croStation will coexist better than most h AutoCAD. There are plenty of thirdrty add-ons (more than for any other Mac D system) for specialized tasks.

ıally, the surface modeling features are rific for what is basically a CAD, not modng, package. There are more ways to eate surfaces, combine shapes, and blend erything smoothly. Rendering has also tten better—shadowing and Phong ading are built in, and there's an expandle library of surface materials.

anuals: Good, but not for one sitting. Five ge paperbacks—plus excellent on-line lp. You get a user guide with fair tutorials, mprehensive command reference, installan guide, and references for database and d-on tools.
se-of-use: Good for a complex package. ıe basic commands are easy to find. On-line lp stays on-screen while you perform the ep-by-step operation for which you needed lp.
ror-trapping: Good. It is tough to crash is program, even on a small machine.
00 *on Reader Service Card*

Drawbase for Windows 1.2

Equipment required: Any computer capable of running Windows 3.1 or higher, with at least 8 MB of RAM, mouse, or WINTAB-compatible digitizing tablet.

Vendor: CADworks, Inc., 222 Third St., Cambridge, MA 02142, 617/868-6003, fax 617/354-3057. (info@cadworks.ccmail.compuserve.com.)

Price: Drawbase 5000 for Windows (3D) 1.2, $5,500, Drawbase 4000 (2D), $4,400, Paradox link $500, Shade, $500 (free in Version 2), AutoCAD link $500, DecisionBase, $500; volume discounting up to 30 percent off. Dealer or CADworks support, about $900 site/year. Version 2 upgrades will be no more than 10 percent of original cost.

The strength of this package, originally sold by Skok, has always been in its underlying database links. While you can certainly use Drawbase for production drafting, CADworks mainly aimed at the facilities-management market. There, the ability to track a space and the furniture within it is paramount.

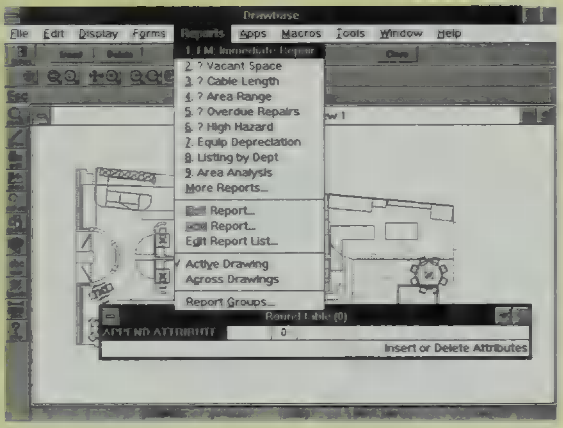
We have one major gripe—there's no built-in provision for key maintenance. Thus you can create duplicate records, or call two different entities (two styles of chair, perhaps) by the same record reference. That's not necessarily fatal—and it can be helpful. You may, for instance, have started with two similar symbols for two types of chair, and then replaced them all with one model in real life. In Drawbase, you don't have to redraw or replace all the symbols.

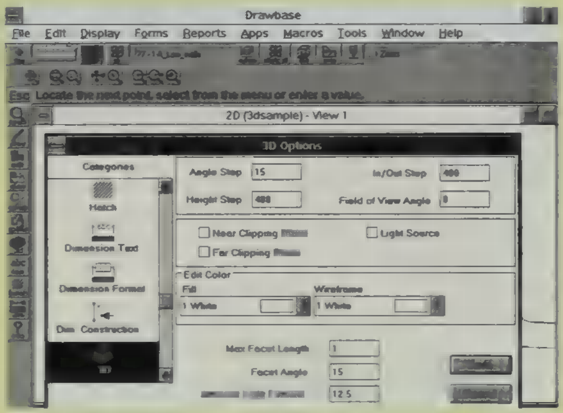
But if you spin out a database with duplicate records to a separate program such as Paradox 5.0, and then tell it to kill off the duplicates, you may corrupt your database.

The next release of Drawbase, Version 2.0 due this summer, will not cure this problem. But it will include the ability to reference external drawing files, and have better shading controls, and some new data and drawing tools.

Drawbase itself is not cheap. But multi-terminal offices, especially in facilities management, can take good advantage of DecisionBase, a $500 viewer/redliner program.

Manuals: Good. Ring binders for detailed reference and tutorial/user guide.
Ease of use: Good. Drawing tools are a bit dated but easy to find, and report generation is a breeze.
Error-trapping: Good. We even bombed the system on purpose, and were warned when we resumed that the previous session had been aborted. The big issue is in data record duplication (see above).
301 *on Reader Service Card*





Locate the next point, select from the menu or enter a value.

Angle Step 15

In/Out Step 400

Height Step 400

Field of View Angle 0

☐ Near Clipping

☐ Far Clipping

☐ Light Source

Fill 1 White

Wireframe 1 White

Max Facet Length 1

Facet Angle 15

12.5

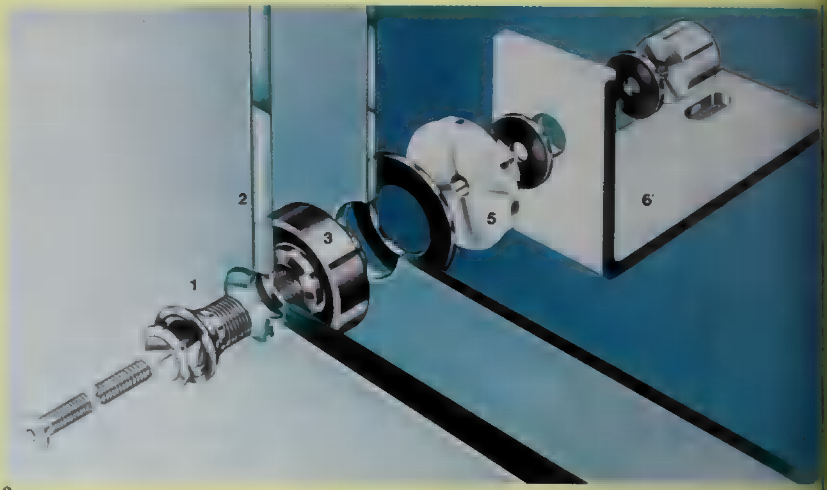
Top: Drawbase for Windows features a popup form for integrated database: the pull-down menu shows some of the report options available as well.

Above: Extruding 2D data from Drawbase to obtain a 3D model.

Using Glass as a Total Cladding System

1. Bushing
2. Armourplate glass light
3. Nylatron spacer
4. Countersunk hole
5. Stainless-steel wash
6. Spring clip

1



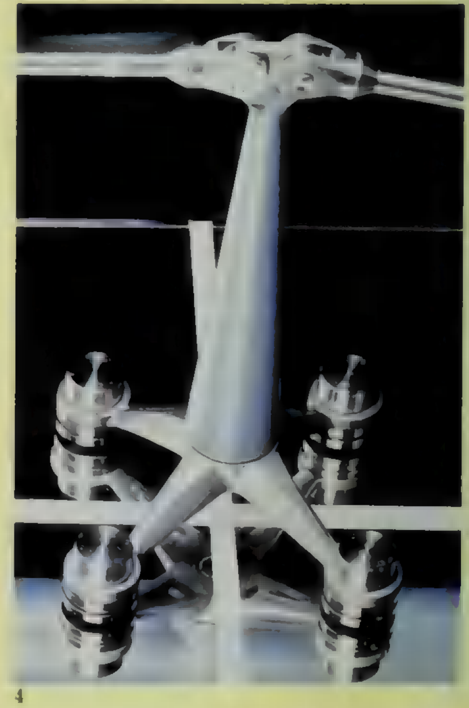
2

3

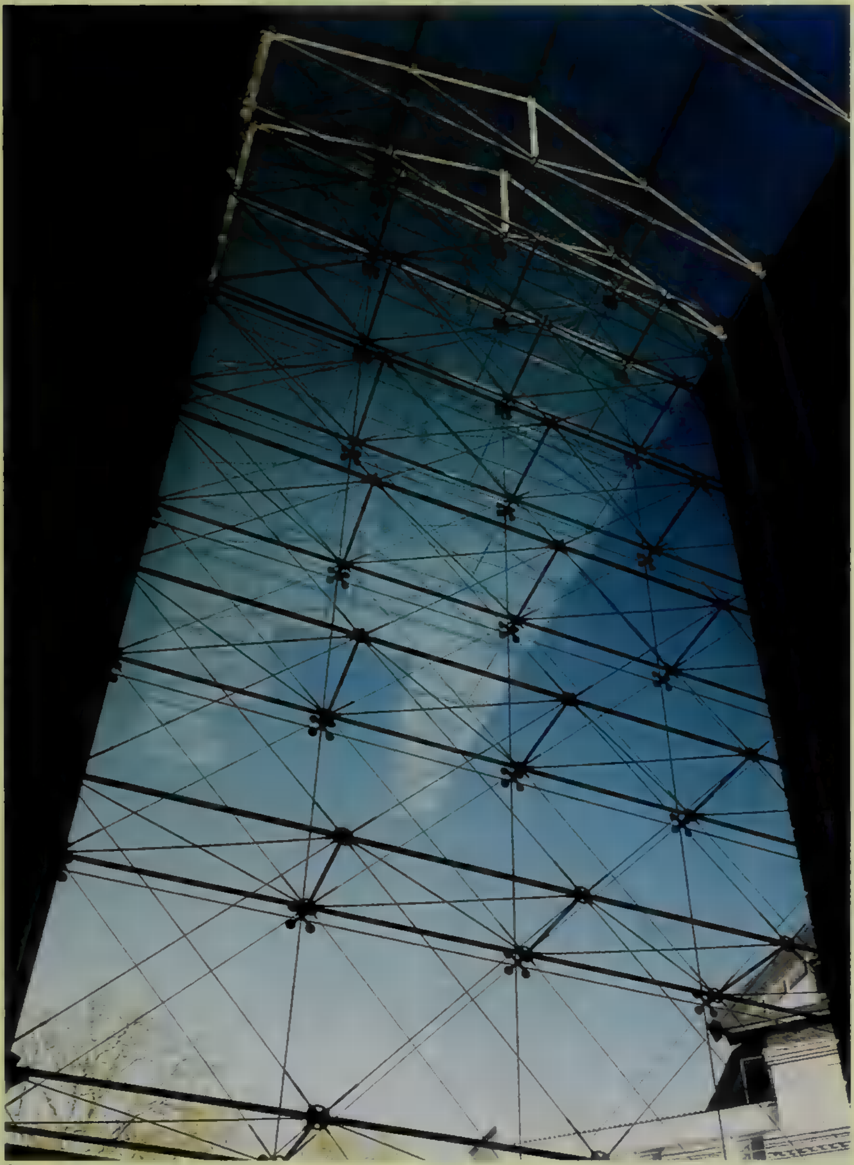
302. Pilkington Glass, Ltd., of St. Helens, England, has designated W&W Glass, of New York and California, to design, distribute, and install its Planar glass-cladding system in North America.

The all-glass appearance of Planar walls and roofs is due to the small scale of the countersunk fitting. Fasteners barely visible from 10 feet (1) "disappear" when viewed from a greater distance (3). Installed flush with the surface of the glass, the bolt (about the diameter of a quarter) supports the weight of the glass by direct bearing, via the bushing, onto the hole drilled in the heat-strengthened [illegible] (2). Independently audited [illegible] quality standards govern the production of the entire assembly: glass and [illegible] Planar glass lights can be used vertically and horizontally, to any height or length desired. Unlike a friction-fit suspended assembly, the Planar fitting allows rotational movement of the glass independent of any adjoining light; silicone caulking functions only as waterproofing for the light-to-light gap. This freedom of movement makes insulating units possible, with the outer light carrying all of the load and the inner light held by the fastener without compromising the seal. Argon gas can be used within the unit to further improve insulating value, as can low-E and other high-performance glasses.

A major design advantage of the Planar system is its adaptability: the support structure can be placed above or below the glass; on the interior or the exterior of the building envelope; strongly expressed or unobtrusive. While the bush and bolt fitting itself has been


4

British manufacturer crosses the pond with a frameless enclosure 'stem for walls and roofs, using an ingenious bolt fitting that lets ass float either from subtle or substantial structures.



6

andardized, the spring-plate load-transfer nnection can be supplied in different forms accommodate various internal or external pport systems, including: metal truss (1), nsioned wire cable (6), metal, glass, or con- ete fins (5). For example, a star-shaped ting (4) connects to cable anchors in a nsile rigging structure.

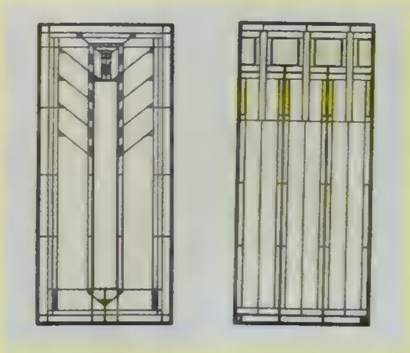
oped or nearly flat (4 deg slope) roof instal- ions can be designed to take the live ading necessary for maintenance; all com- nents—glass, fittings, brackets, and ructure—can be engineered for almost any ticipated dead, live, and seismic load. Since ch light in a Planar system is structurally dependent, damage to individual glass its—due to accidental breakage or a nshot, for example—doesn't compromise e installation. (Large Planar walls performed very well in the Northridge, Calif., and Kobe, Japan, earthquakes.) Absence of projecting mullions lets the glass self-clean.

Where laminated glass is needed, Pilkington uses cast-in-place resin in a cold-process technique said to chemically bond the inner surfaces of the two glass lights, allowing them to move as one during thermal and seismic events. Edges of laminated-glass lights need no special protection from moisture, and the casting process lets the designer place frit patterns on an interior surface without compromising the structural adhesion of the two panes.

All glass is heat soaked, to totally eliminate the (minimal) chance that lights will spontaneously break from nickel-sulfide inclusions (a problem identified with tempered glass). Pilkington says the float process used to make its Armourplate glass produces an absolutely flat large glass light that reflects a true image with minimal roller-wave distortion. Because of the elegant way loads are transferred, a Planar wall is said to be particularly useful in renovations, since the glass supports can be designed for minimal interference with the surrounding fabric. The Planar bolt technique can also be used as a curtain-wall fitting, providing a mechanical attachment for four-sided silicone glazing installations. 800/452-7925. W&W Sales Limited, Nanuet, N.Y. ■

1. & 3.—Baxter Hodell Donnelly Preston, Inc., Architects; Cincinnati
5. Nicholas Grimshaw & Partners, Architect; London
6. G.S.W. Architects; London

Product Briefs



303. Wright art-glass windows

Made to fit new or existing Andersen windows and patio doors, decorative panels recreate original Frank Lloyd Wright designs in an authentically detailed "antique" colored glass set in zinc caming. Licensed reproductions include nature-based motifs from the Ennis Home of 1926 and geometric window designs from Unity Temple (1906). 800/426-4261. Andersen Corp., Bayport, Minn.

304. E-size scan-to-file

For A/E offices and reprographic centers with mid- to high-volume large-document-processing requirements, space-saving 9500-S series machines combine the functions of digital plotting and scanning with low-maintenance LED copying. Components can be purchased separately and upgraded; smaller units available for smaller offices. 800/445-3526, x 7000. Océ-USA, Inc. Itasca, Ill.

305. Mirrored-glass tiles

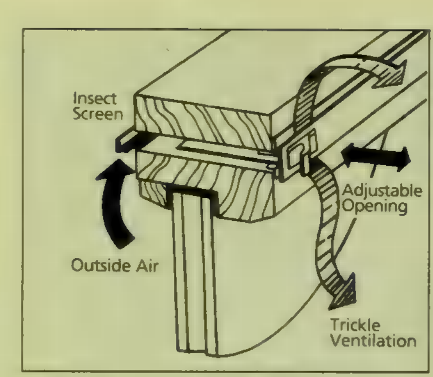
Specchi Da Arredamento tiles and panels are individually decorated and fired to create unusual three-dimensional effects. For interior application in restaurants, hotels, and casinos as well as homes, the art-glass material comes in 18 colors and patterns (Policromo is shown) that can be combined to create light-catching murals. Price range: $4-9 psf. 800/345-0476. Forma Design, Norwalk, Conn.

306. Master-key security

Signature Series locks combine specially machined key blanks, cylinder barrels, and cylinder bodies to create unique three-point pinning configurations. Altering just one part, such as the key blank, generates thousands of distinct locks within different levels of access. Said to be an economical, field-serviceable means of key control. 800/945-0536. Sargent, Div. Essex Industries, New Haven.

307. Wood-look roofing

Made of Portland cement, recycled fly-ash, and wood fiber, Nature Guard shakes come integrally colored in shades of gray or brown textured to resemble natural cedar. A Class A material, roofing will not effloresce, and resists breakage even when walked on. Available in a 22-in. length, three widths, and trim shapes. 800/299-0028. Louisiana-Pacific Corp., Portland, Ore.



308. Passive ventilation

Installed in metal commercial units as well as wood or vinyl residential windows, unobtrusive trickle ventil tors admit fresh air and exhaust interior humidity and contaminants without compromising security and energy efficiency or letting in rain o insects. Widely used in Europe, the vents can be retrofit or built into ne windows and doors. 219/271-9699. Titon, Inc., Granger, Ind.

309. FRP composite decking

One of several new fiberglass-reinforced-plastic construction products the E-Z deck has long-term resistance to weathering and UV fading. Furnished as a cut-to-length C-shaped profile, decking snaps onto clips placed on standard wood substructures; finished deck has no nailholes and will not splinter. ZCL Composites, Inc., Nisku, Alberta.

310. Insulating-glass options

Heat Mirror TC-88, with a dual-coated suspended film, and Sunbelte SC-75 Solar Control insulating glazings are said to offer a 50 percent improvement in R values over low-E glass, to make interior space near windows more comfortable, and to block outside noise and UV radiatio Priced to compete with mid-range low-E windows. 800/2BE-HURD. Hurd Millwork, Medford, Wis.

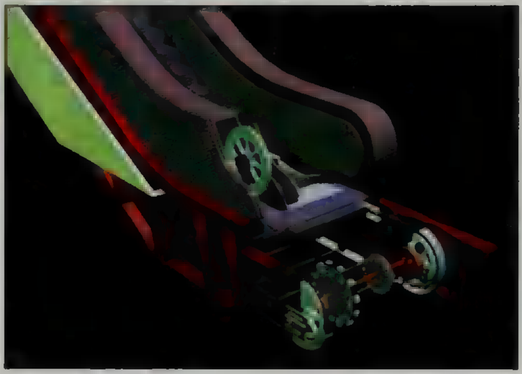
311. Emergency egress

The Life Way path-marking system is said to meet all applicable codes without intruding on the esthetics of a space. Can be floor-mounted near baseboards, or placed higher on a wall; good for commercial, industrial and institutional facilities. Battery back-up operation; all lighting parts come within a single flexible strip. 708/956-8400. Sure-Lites, Cooper Lighting, Elk Grove Village, Ill.

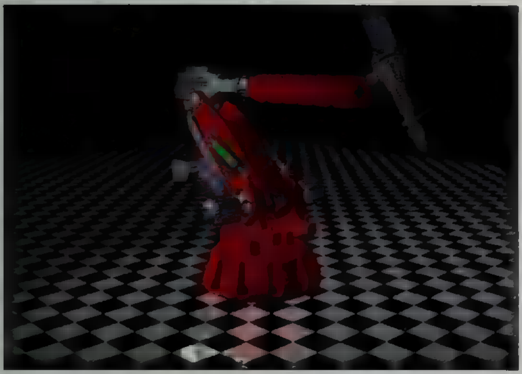
312. Cheerful cast-marble tile

Splash, a new pattern, is a less-formal version of Armstone cast-marble tile. It incorporates colorful solid-plastic chips reclaimed from waste materials into a predominately white or soft-black stone-aggregate and resin matrix. Sample program for architects and specifiers 610/565-1575. PermaGrain Products, Inc., Media, Pa. ■

MODEL



Introducing the Sapphire™ 2SX 3D accelerator card, delivering impressive workstation graphics performance for your PC. The flexible Sapphire 2SX allows multiple configurations and memory options so you can easily develop and manipulate 3D models.

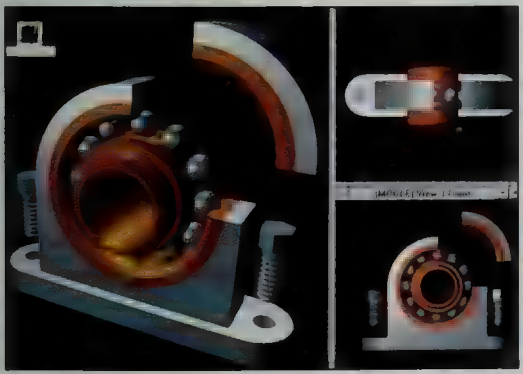


ROTATE

Everywhere you turn, applications are demanding greater performance. The Sapphire 2SX can easily meet these demands. Not only does the Sapphire 2SX deliver lightning speed but it supports 16.7 million colors and gives you resolution of up to 1600 X 1200. Providing realistic color while you view your creation from any number of angles.

RENDER

Photorealistic renderings can be performed in a fraction of the time with the Sapphire 2SX. Accelerated rendering features include: shading, texture mapping, anti-aliasing, atmosphere and depth cueing. So you can quickly and easily see anything your mind generates.



EXPLODE

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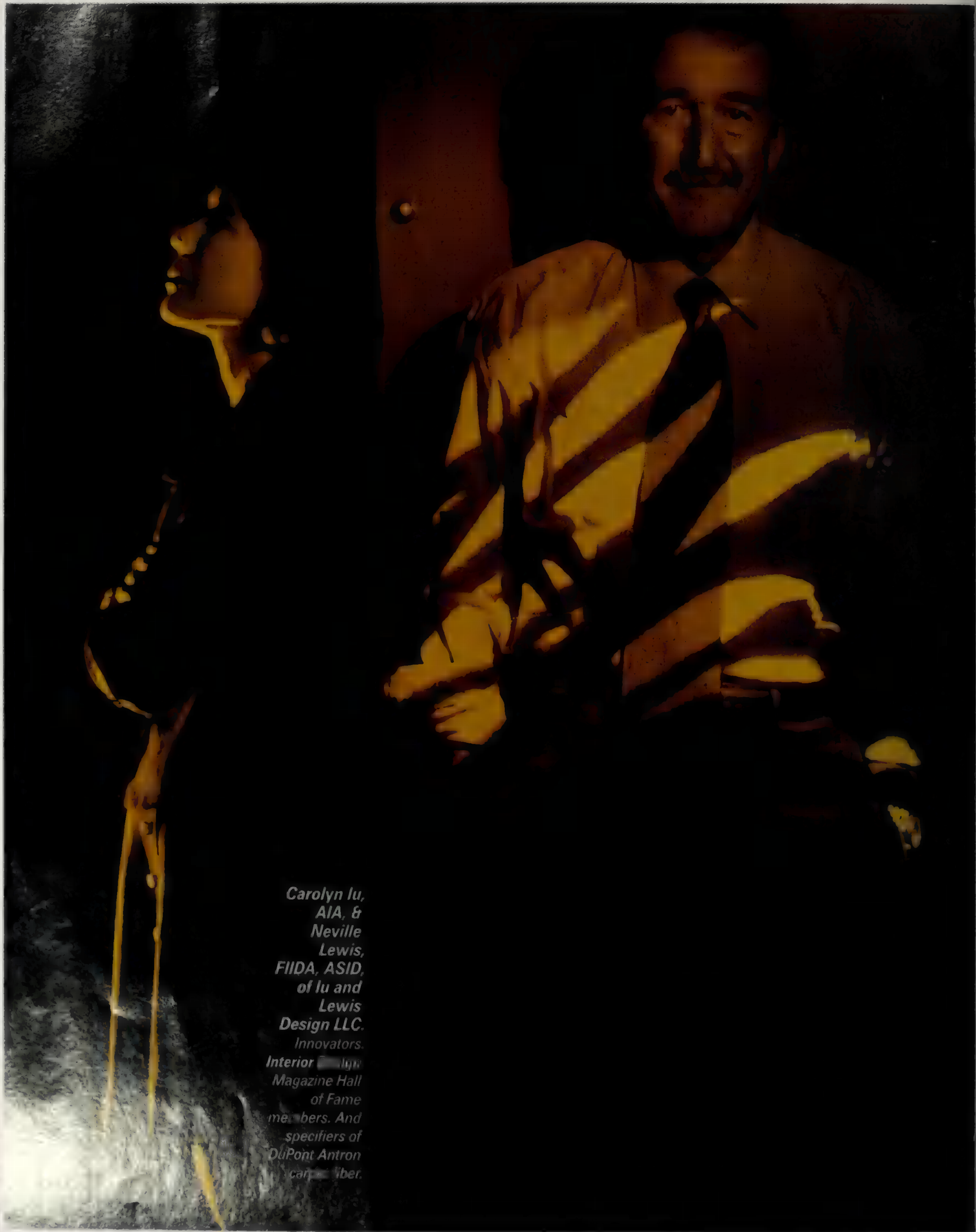
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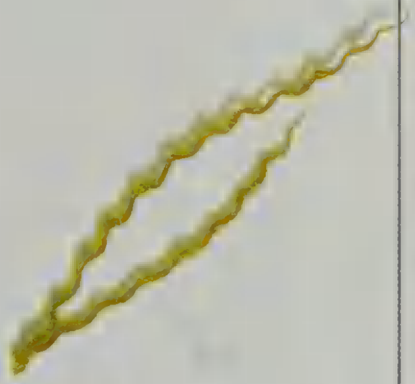

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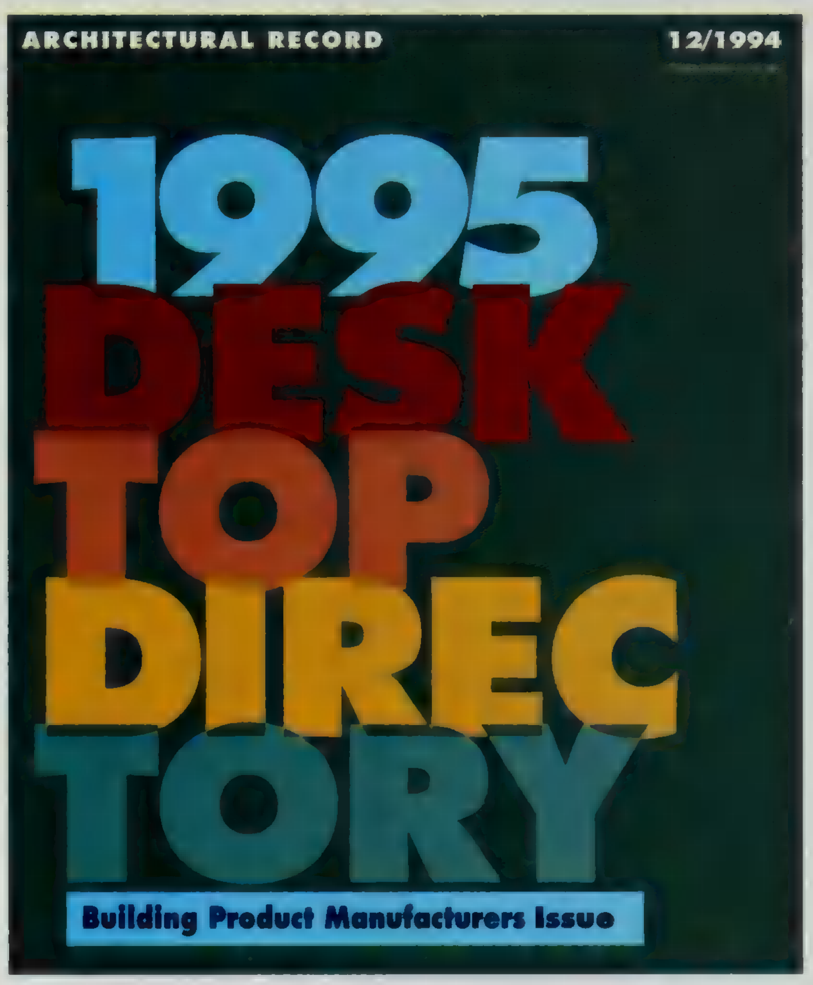

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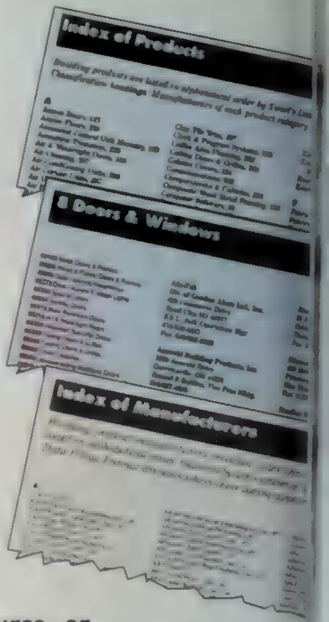

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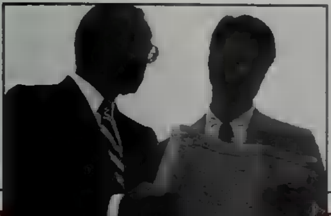

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"NOT YOUR ORDINARY PROJECT."

That might have been how CUH2A architect Fred Bliefernich described the November 1993 assignment from Six Flags® Great Adventure.® The project at the New Jersey theme park called for a single structure designed to look like a series of shops on a colonial "Main Street" that featured the well-known cartoon characters. The deadline was five months away. And most

SWEET'S BROUGHT THIS PAIR TOGETHER UNDER SOME PRETTY LOONEY CIRCUMSTANCES.

of the construction would take place during winter.

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In spite of the worst winter in years, the park opened as scheduled on April 1. And with help from Sweet's, the project that had seemed a little looney no had everyone whistling a different tune.

For Fred and other architects, the Sweet's Catalo Files and SweetSource,® complementary electronic produc information on CD, are essential. "With manufacturers binders often being two to three years old, you nee to go to the most up-to-date, comprehensive source o information," he says, "and that's Sweet's."

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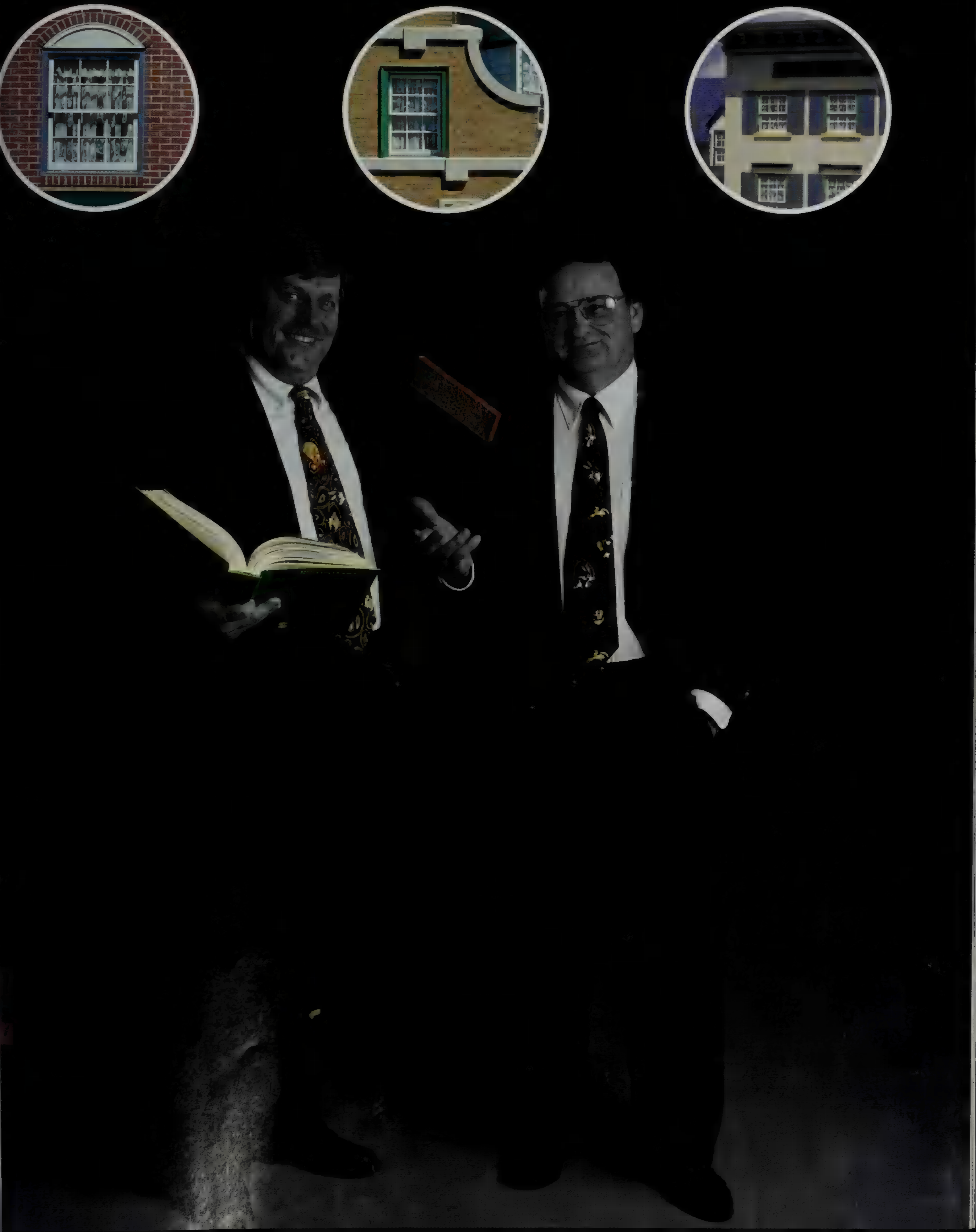

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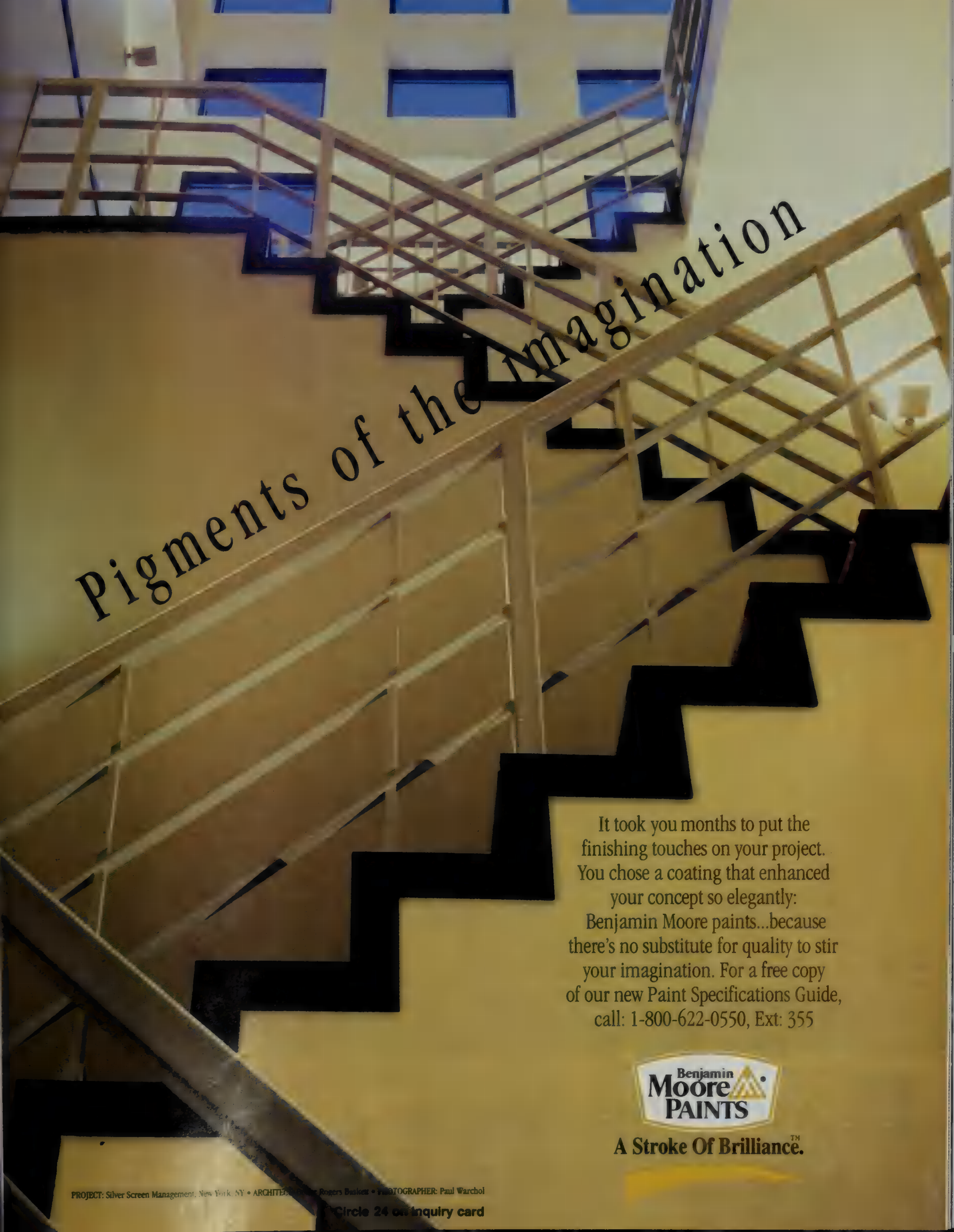

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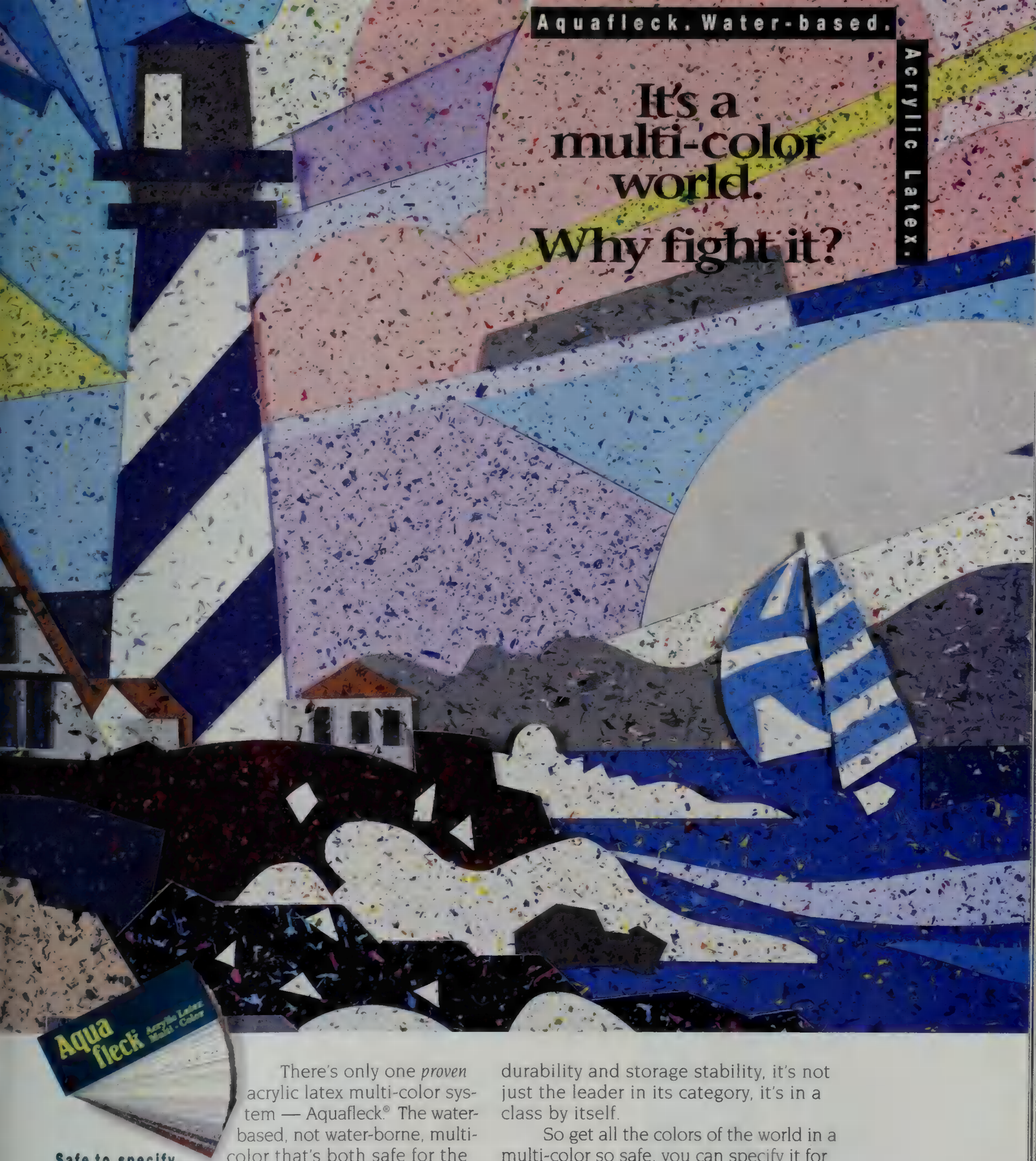
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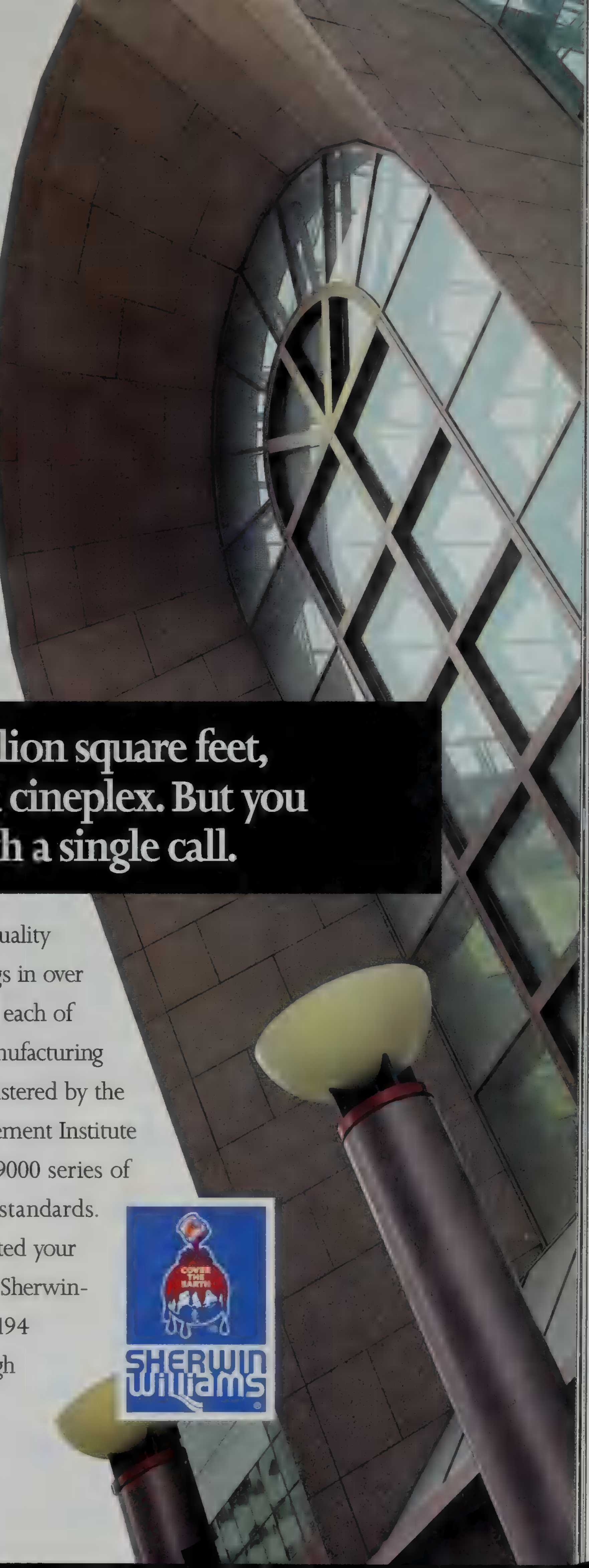

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ARCHITECTURAL RECORD 6/1995

Building Types Study 727/Community Facilities

Politically, we are in an era of funding cutbacks, and in the future, it is expected that both people and facilities will do more with less. Projects for this Building Types Study were chosen with this in mind, both for their diverse nature and creative funding. Two are facilities for the care of troubled or potentially troubled children. One of these was funded privately, and the second by a consortium of public and private sources. Both are buildings completed just as we are being urged by some to return to the use of orphanages as opposed to foster care. Elsewhere, a town hall fosters dialog, putting constituents and politicians in each others' faces, where the democratic process tells us they belong. In two towns, water has been the catalyst for the adaptive reuse of industrial zones. One created new housing, resurrecting itself by dredging an old shipping channel. The other, an aquarium, creates a sanctuary for marine animals, and teaches visitors about ecology. Both are magnets for economic redevelopment.

Last, but not least, we have included three delightful small public libraries, a building type that has taken more than a few hits lately. Who needs a library when you can find almost any text you'd ever need on The Net? Bah. We will always need places where we may go and study, just as there are lots of other activities that can't be done electronically. When will child-rearing start going via Net? When will web-pages start working as economic magnets for neighborhoods or as places to see live sharks swimming (although a municipal debate on the Net might come as close as anything)?

The Net is nothing new. Remember those black-and-white Cold War films of guys manning lonely radar stations along the DEW line? For months at a time, their only source of information and contact with other people was by shortwave radio. It drove them crazy. This is not what we need. As our essay by architect and planner Alex Krieger suggests, architecture that doesn't work—and the Internet—are no substitutes for warm bodies in environments that do. *C.D.L.*

anufacturers' Sources
sted on page 121

Reinventing Public Space

By Alex Krieger

A familiar critique of contemporary urbanism is that it suffers from an absence of public life, in part due to the absence of sufficient public space. Critics ranging from Edward Soja, to Christopher Lasch, to Mike Davis, to Richard Sennett worry that a minimization of public life (and public place) threatens the social nature of cities. Michael Sorkin goes so far as to claim that the need to reclaim the city from undue privatization and various "inauthenticities" represents a "struggle for democracy itself."

The critique (and worry) unfolds thus: Dispersed work and living patterns increase isolation and foster social alienation. Spending time in simulated public, but actually highly managed private, environments such as malls or theme parks leads to confusion about acceptable public behavior. After all, in a mall one can be thrown out for behavior deemed inappropriate by the management. Exchanging information largely through electronic means exasperates already difficult communication, and contributes to the rise in asocial attitudes or habits. In losing sight of and physical contact with one another, people reduce their capacity to respect difference, or to maintain empathy for a notion about a common good.

While we may be becoming more self-centered, or at least suppose ourselves to be becoming self-sufficient, it is not for lack of common space. Comparing a map of an American city to a map of a relatively intact medieval fabric, Toledo, Ohio, to, say, Toledo, Spain, reveals that the ratio of common space to private space is greater in Ohio—by a fair amount. Less of the public space in Toledo, Ohio, is edified, to be sure, or memorable, but in the sum total of streets, sidewalks, paved areas, setback zones, lawns, recreational fields, parks, open spaces, parking lots, highway corridors, conservation easements, lobbies, public buildings, empty lots, subway platforms, airport terminals, and the like, Ohio's Toledo outdoes Spain's. So, too, the percentage of public space in Florence pales by comparison to that found in Detroit. In Detroit there are more categories of common space, more space allotted to individual public functions, more open space, and more space made accessible, or at least visible, to all. Yet few claim that Detroit is more conducive to social interaction than Florence.

So it may not be the amount of common space that determines sociability. A more radical notion is that the modern city has too much and too many kinds of common space, and thus some portions are bound to go unused, unmaintained, uncherished. Paradoxically, it may be our surplus of common and public spaces that retards communal attachments. It is hard to love a parking lot even if it is a public one. It is hard to transform each parking lot into a place for social interaction even though they are a familiar component of the contemporary urban experience. There is only one Campo in Siena; redundancy in the public realm is one of our burdens.

The need for edified and everyday community space

There is a tendency to view community space as monolithic; it is either for the public or it is not. But there are many thresholds for public intercourse. Although you are there at the management's discretion, many citizens may feel more comfortable in a private shopping mall than in a public library. In a mall, one can walk and stroll and sit and dine. One can gaze, preen, and flirt. The hours are good. You can go there on weekends. In the most sophisticated malls you can visit your dentist and, soon, surely, pay your real-estate taxes or renew your driver's license. In a public library, by contrast, one ha to be quiet. This is not an argument in support of building malls rather than libraries. It is merely a reminder about the breadth of public needs and expectations, some of which may be provided through humble means.

The Campo in Siena is both the symbolic center of the city and a work-a-day environment. Regrettably that is a rare occurrence. City Hall plaza in Boston (inspired, according to its architects, by Siena's Campo) is undeniably a public space, intended to edify local government and provide a symbolic setting for participatory citizenship. It is arguable whether the symbolism works. The plaza is generally empty while across the way the much more modest environment of the Haymarket is often full of people, the result of a temporary appropriation of a public street by private agents selling produce. Again, it seems, neat categorization of private and public isn't that significant. Is not one of our cultural dilemmas an increasing skepticism, bordering on cynicism, about representing the public at large, as opposed to maintaining decent environments for normal activities and behavior? In Boston there is talk of programming new functions for the plaza, some perhaps even to be privately managed. Will the plaza's "publicness" be irrevocably compromised as a result or might it, in another sense, become more public by being better used?

Community and public space are not always interchangeable; community and privacy are not always antithetical

A community is a group sharing some essential interests; but not everyone shares the same essential interests, references to the idea o the "human community" notwithstanding. While we use the word "community" interchangeably with the word "public," community involves selection; a distinguishing of those who belong from outsiders. The public, on the other hand, is—or should—encompass everyone. This is not a subtle distinction, yet difficult for Americans whose ideals waver between demands for equality of access and territoriality. We expect our community spaces to be comfortable, useful, familiar, stable, ours, just like an old ethnic neighborhood.

But careful historical analysis does not support the romantic notion that the pre-industrial city provided equal access to all. That is wishful revisionism. Strangers in the maze-like alleys of a traditional bazaar were no more comfortable than strangers in a suburban cul-de-sac. Most areas of the medieval city were, indeed, the domain of a community. This meant a defined, identifiable group under whose aegis, and whose eyes, a territory was maintained, made secure and made available (in a controlled way) to others. The current rush of enthusiasm for the "community" found in the traditional small town disregards the many anti-public predilections of small-town life. Whatever its virtues, the small American town also sheltered confor-

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nd Urban Design, of Cambridge, Mass., and a professor at
rd's Graduate School of Design.*

The Internet Revolution is likely to replace the
inary world of public and private space with
pace open to pluralism and diversity.

ity, ingrown mores, mistrust if not downright intolerance for
trangers, and a general absence of social or cultural choices. Reading
e minutes of the Seaside homeowners association meetings, like re-
eading Sinclair Lewis's Main Street, may temper some of the
ccolades for Seaside, not as a physical environment, but as a new/old
aradigm for democratic social exchange.

ropinquity is no longer a pre-condition
or community (but it still helps)

/e are at a moment in history which minimizes the importance of
hysical connections, enchanted as we are by virtual space and E-
ail. There are, indeed, many examples of human association which
o not depend primarily on physical proximity, at least for purposes of
ommunication, and it is part of our millennial *zeitgeist* to explore the
mits of non-spatial social organization. Yet, travel and tourism con-
nue to increase as forms of recreation. Is this only because we are
obile and travel is cheap, or do we travel in part to balance out the
lacelessness of daily existence with the power of place?

he widespread interest in history, decoration, old neighborhoods,
nd regional charm are more expressions of a desire to connect with
lace; an ancient catalyst for community formation. The popularity of
ecreational shopping, of festival markets, amusement parks, sport-
ng events, movie theaters (in spite of 100 cable channels), road races,
ven walk-a-thons, may be further subliminal rebuttals to social and
patial desegregation. Thus propinquity, while no longer a necessity
or many social and business transactions, is today sought out for the
heer pleasure of it. This portends well for advocates of community,
ince desire is no less powerful a human force than need.

Moving beyond the binary world of public and private

Vhat will communities look like on the other side of the Internet Rev-
lution? They may take us to realms where long-standing oppositions
ay no longer prevail: to the covenanted New England Village, or a
ower East Side immigrants' ghetto. Roberto M. Unger, who teaches
heory and ethics of the law at Harvard, urges that we shift our
nergy from prolonging an archaic public/private dichotomy, in which
ach condition draws meaning only in opposition to the other, to con-
eiving of social space. "The social spaces of an experimentalist
emocracy," he writes, "are not a repertory of physical structures
learly demarcating groups of people and their specialized jobs; they
re more like diminutive versions of society itself, with its promise of
nexhaustible possibility." This must unsettle those who believe that
he essence of community is a search for stability and equilibrium.
uch characteristics are in short supply today. But rather than lead us
o the pessimistic conclusion that community life and public space is
n decline, we must take on the challenge of envisioning communities
vhich are receptive to pluralism and possibility. Good architectural
vork for communities contributes to social space, not to a static
ggrandizement of the public realm. It addresses the community
eeds by delivering useful, well-conceived spaces and services. It por-
rays itself as part of a much larger network of communal facilities. It
loes not aspire to be part of a microcosm—just a valued or valuable
omponent like the virtuous citizens who are at the core of any
ealthy community.

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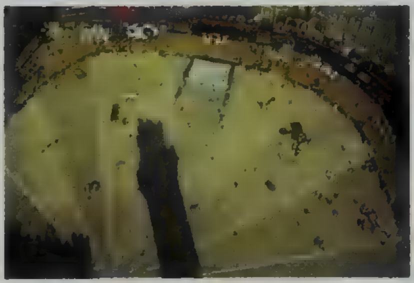
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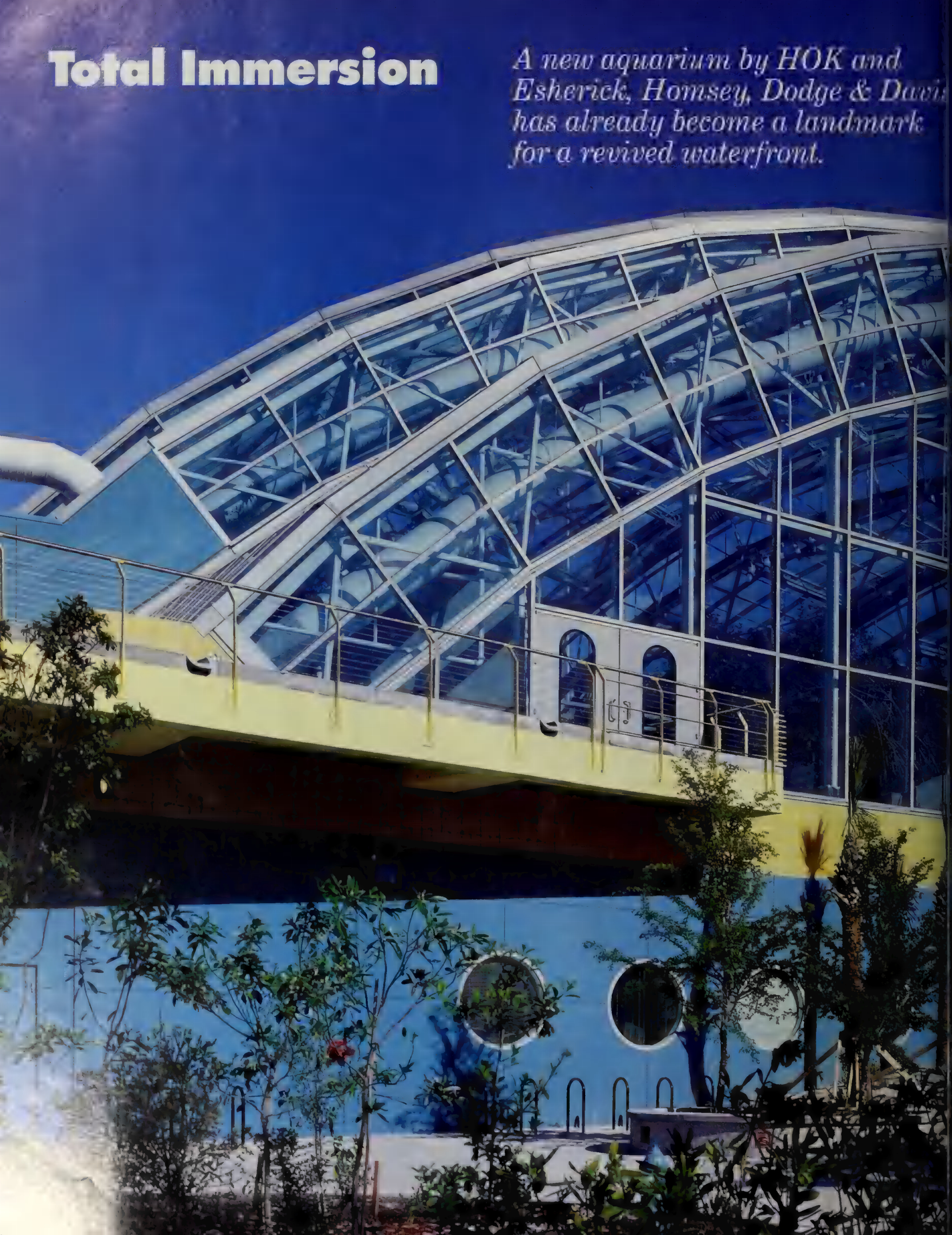
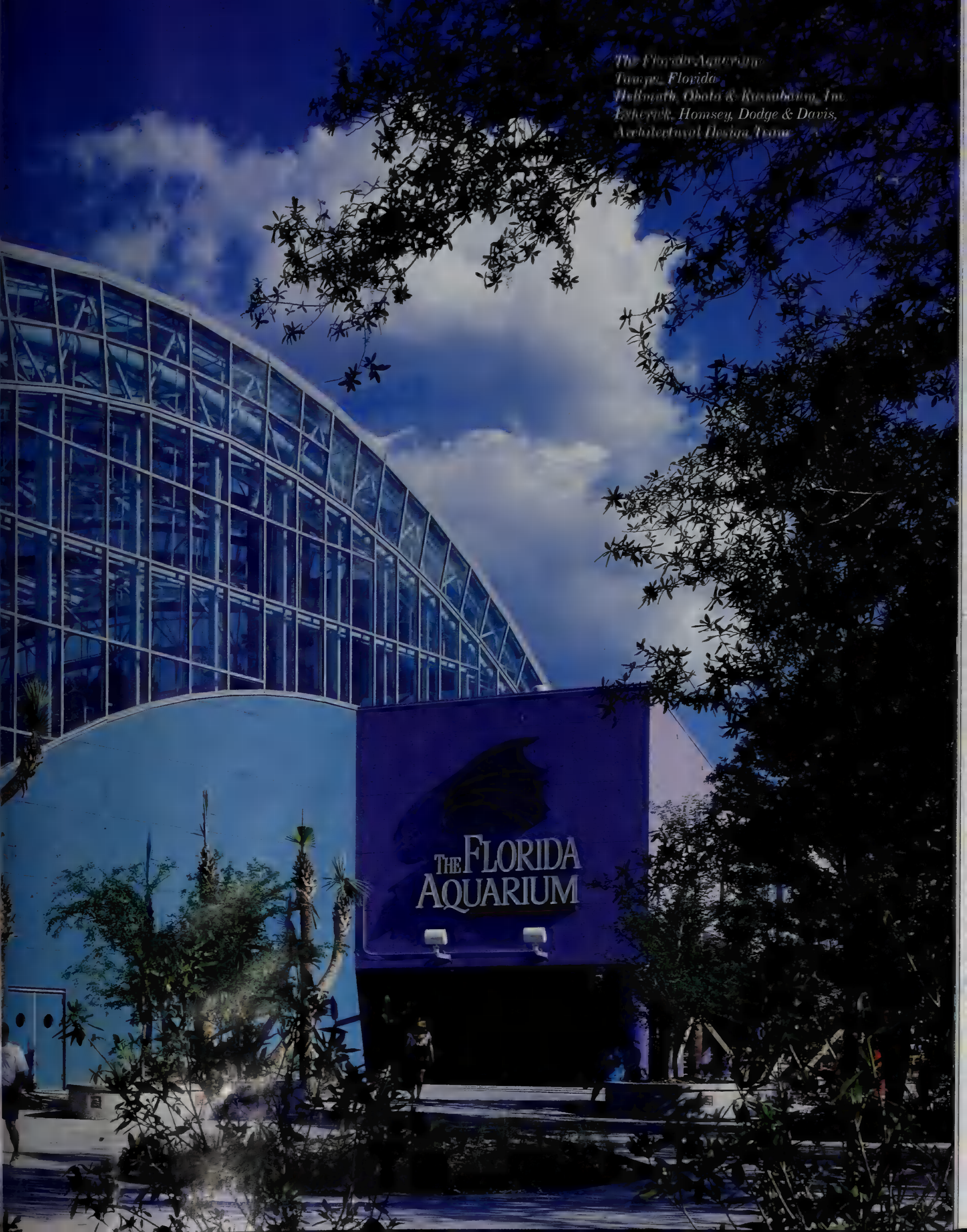
4

Rockefeller Center (1), the Campo in Siena (3), and the Haymarket (4) in Boston seem to succeed in meeting people's needs for public interaction. Spaces like City Hall plaza (2), also in Boston, and across the street from the Haymarket, seem to illustrate that it isn't simply the amount of sheer area dedicated to community use that makes a public place an attractive gathering point.

Total Immersion

A new aquarium by HOK and Esherick, Homsey, Dodge & Davi has already become a landmark for a revived waterfront.





The Florida Aquarium
Tampa, Florida
Hellmuth, Obata & Kassabaum, Inc.
Esherick, Homsey, Dodge & Davis,
Architectural Design Team

Placed on Tampa's waterfront in a gritty industrial area that had deteriorated over the years, the Florida Aquarium was conceived as a joint public-private project that would act as a catalyst for redevelopment. With its distinctive dome visible from downtown and its outdoor decks connecting it to its surroundings, the aquarium has indeed become a colorful anchor for a revived waterfront. Now three cruise lines are active in the area and a new ship terminal is nearing completion next door.

Like a good Hollywood movie, the aquarium began with a strong storyline. "A key part of this project was to tell the story of Florida's water, from its underground source to the open sea," says Dena Leavengood, manager of the aquarium's learning lab. Long before it hired any architects, the non-profit organization behind the aquarium had exhibit designer Joseph Wetzel working on ways to turn an environmental message into an entertaining and educational experience.

"We designed this building from the inside out," says Charles Davis, senior design principal of Esherick Homsey Dodge & Davis (EHDD), one half of the architectural team with Hellmuth, Obata & Kassabaum (HOK). "We started with Wetzel's exhibit concepts and then designed the architecture around them." With the two architecture firms and the exhibit designer working together throughout the project, the building is the result of a true collaboration. According to Wetzel, this project represents the third and latest wave of aquarium designs—one that gives visitors the sense of being immersed in the marine world on display. The first generation of aquariums, says Wetzel, used a "showcase" approach, displaying "one of everything," while the second generation put plants and animals into groupings that imitated natural habitats.

The immersion begins with the very first exhibit. After climbing the building's main stair from a spacious entry hall on the ground floor, visitors learn about the underground sources of Florida's water while inside a cavern-like exhibit. To heighten the sense of being surrounded by the marine world, the designers placed a fresh-water spring *above* visitors as they move through this exhibit. Thanks to panes of clear acrylic (ranging from 1 1/2 inches to 11 3/4 inches thick), though, no one needs an umbrella indoors. A meandering path then leads to the airy wetlands exhibits, housed within a giant segmented dome made of 1,100 panes of glass and epoxy-coated steel trusses, tubes, and cross-bracing. First sketched by Gyo Obata, HOK's co-chairman, as an abstract seashell with a radius of 135 feet and a clear span of 65 feet above the second floor, the dome is the aquarium's most recognizable feature. "We wanted to create an icon for the entire port area," explains Obata.

As visitors move from freshwater exhibits to marshes and saltwater displays, the path slowly descends so that the water level seems to rise. Leaving the domed portion of the building, one is plunged into a darker realm where fish swim on the same level as people walk. Most of the aquarium's salt-water exhibits reside in a brightly colored, poured-concrete structure on the opposite side of the entry hall from the dome. An outdoor deck outfitted with railings made of nautical piping provides a welcome place to rest before tackling the remainder of the displays. The star attraction of the second half of the aquarium is the coral reef exhibit, which simulates a dive into the unique habitat off Florida's coast. The sloping exhibit path winds down and around two giant tanks, offering views of the reef from a variety of vantage points and depths. The grand finale is the 43-foot-wide, 14-foot-high window onto the bottom of a 600,000-gallon tank. To keep everyone dry, the acrylic here is 11 3/4 inches thick. *Clifford A. Pearson*

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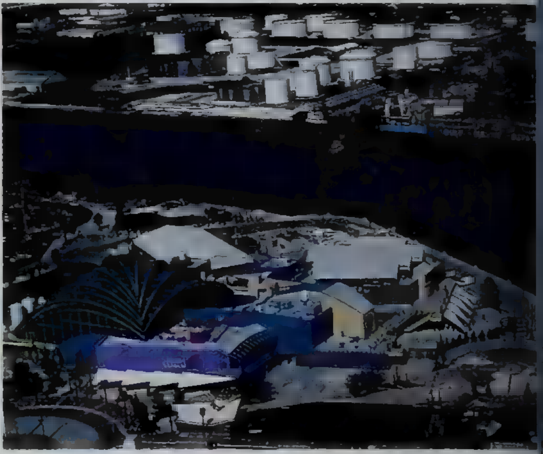
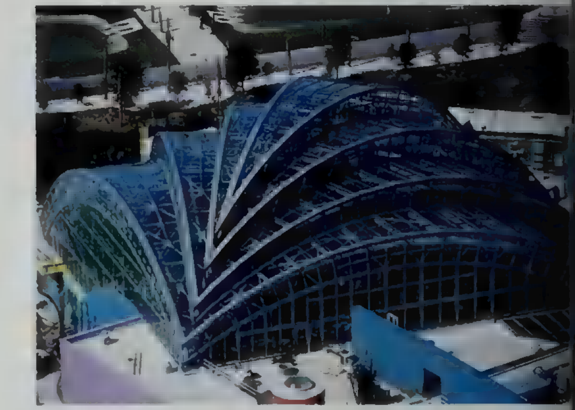
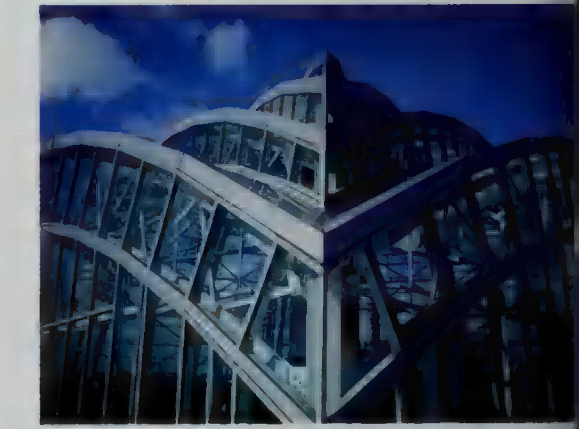
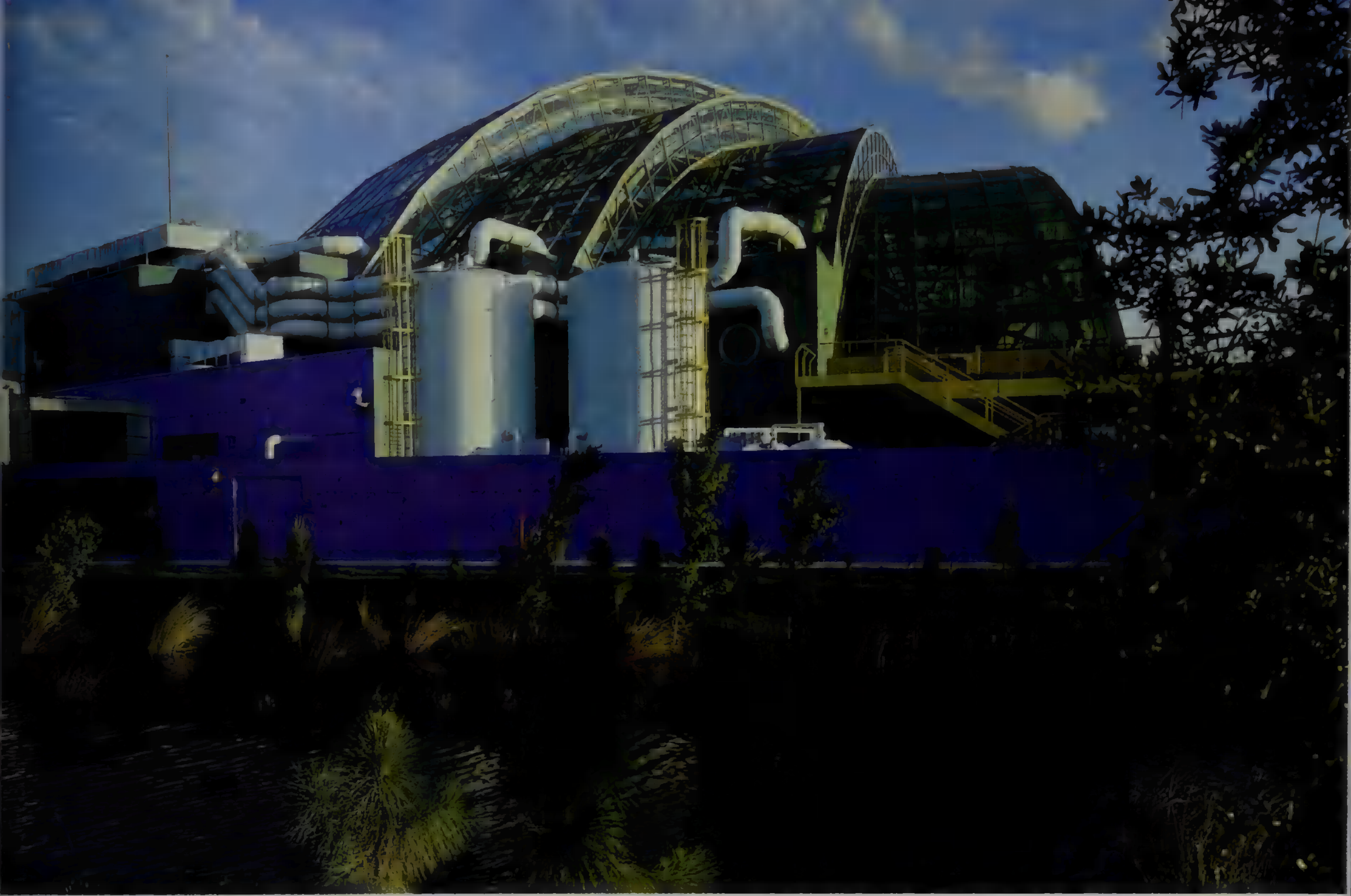
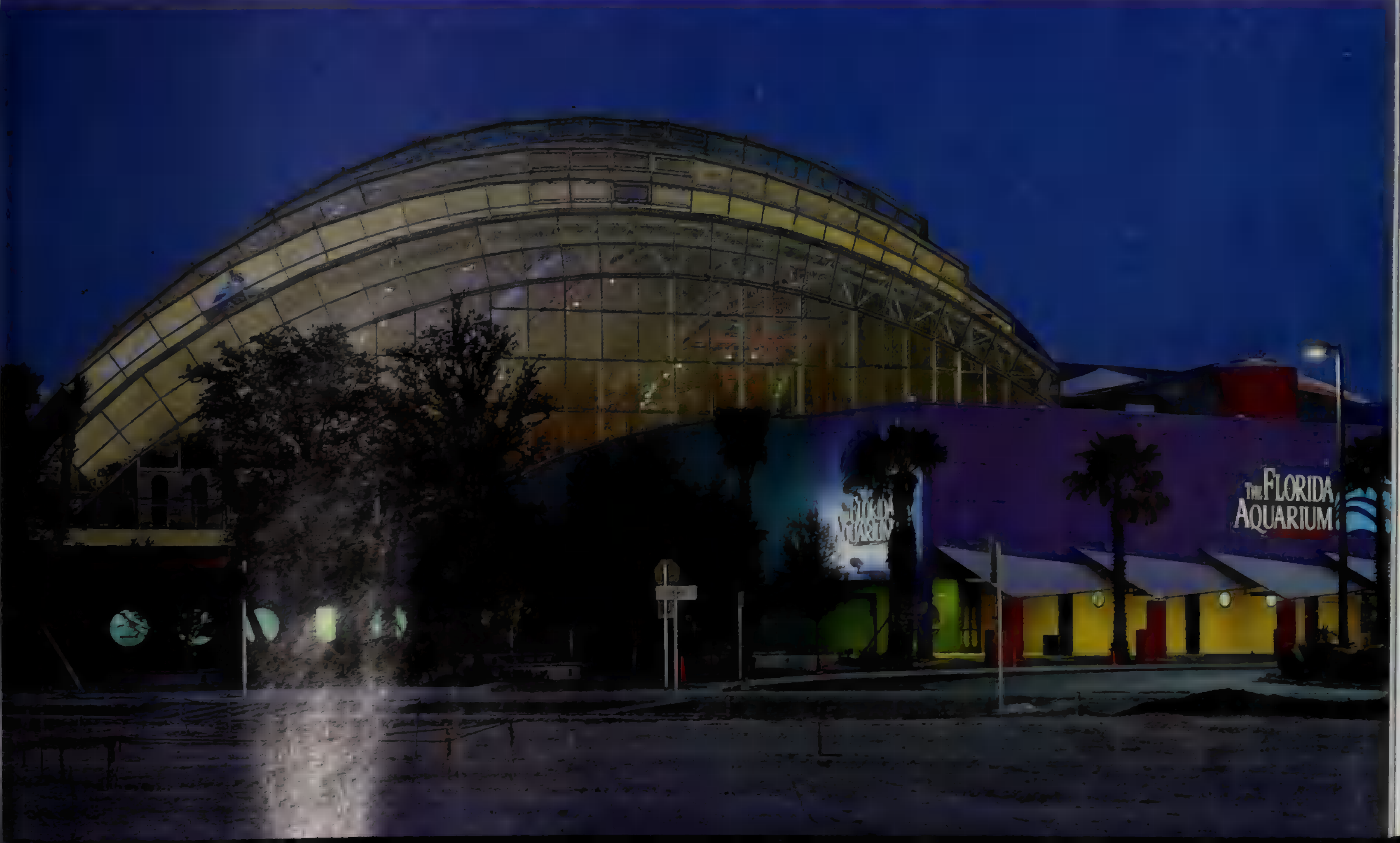




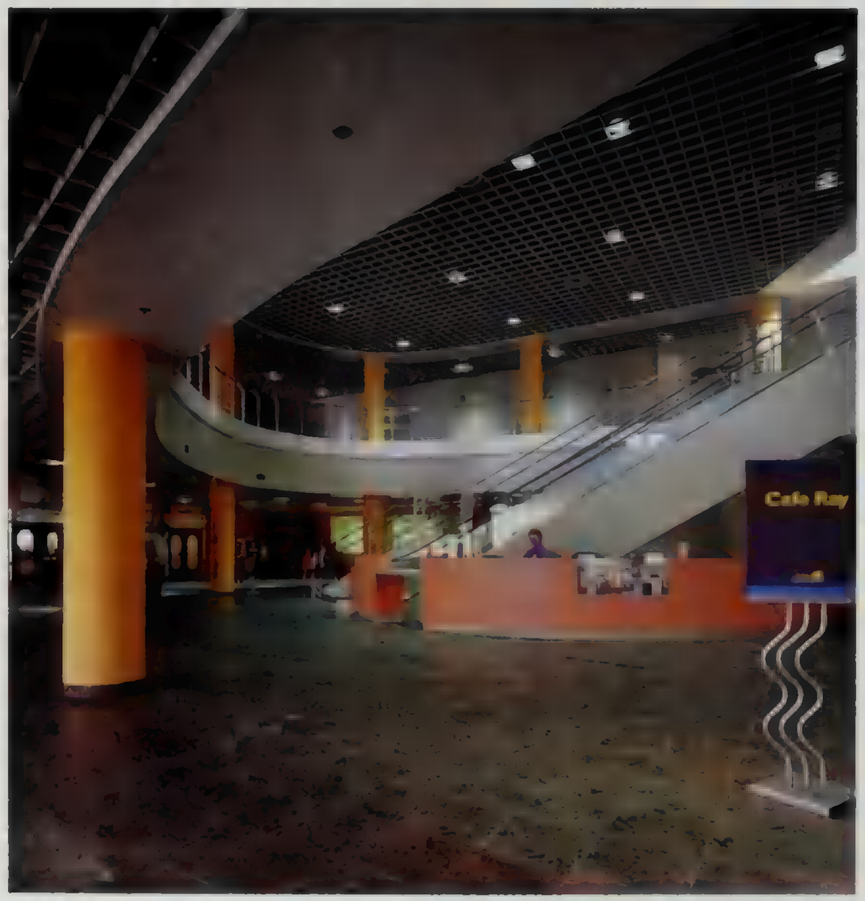


Located at the intersection of two shipping channels (top), the 152,000-square-foot aquarium takes cues from its industrial and nautical neighbors—as seen in its water tanks (opposite top), circular ship windows (opposite bottom), and seashell-shaped dom (above). Salt water is piped into the tanks from barges. The aquarium is a concrete-frame structure with a steel-and-glass dome Each steel truss from the dome rests on a curving concrete buttress inside the structure.



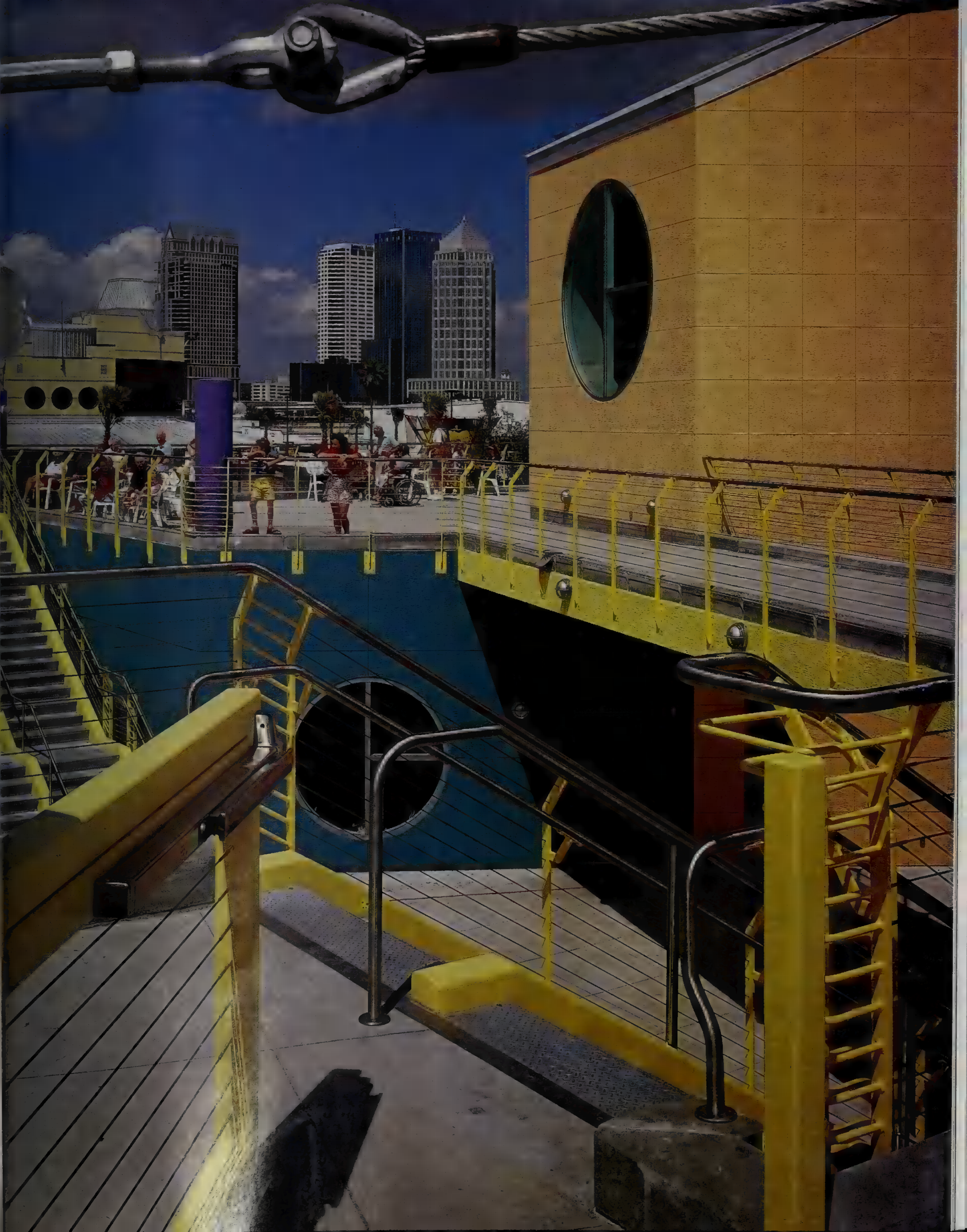


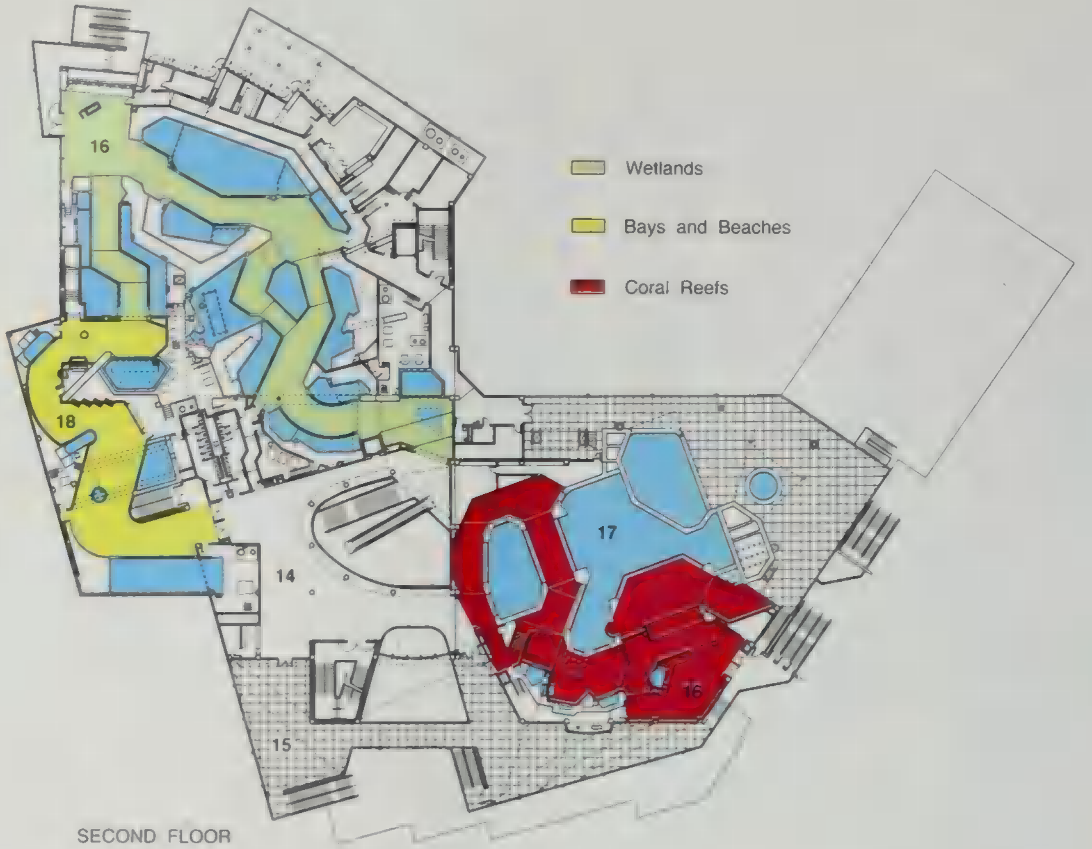
THE FLORIDA AQUARIUM
FLORIDA AQUARIUM

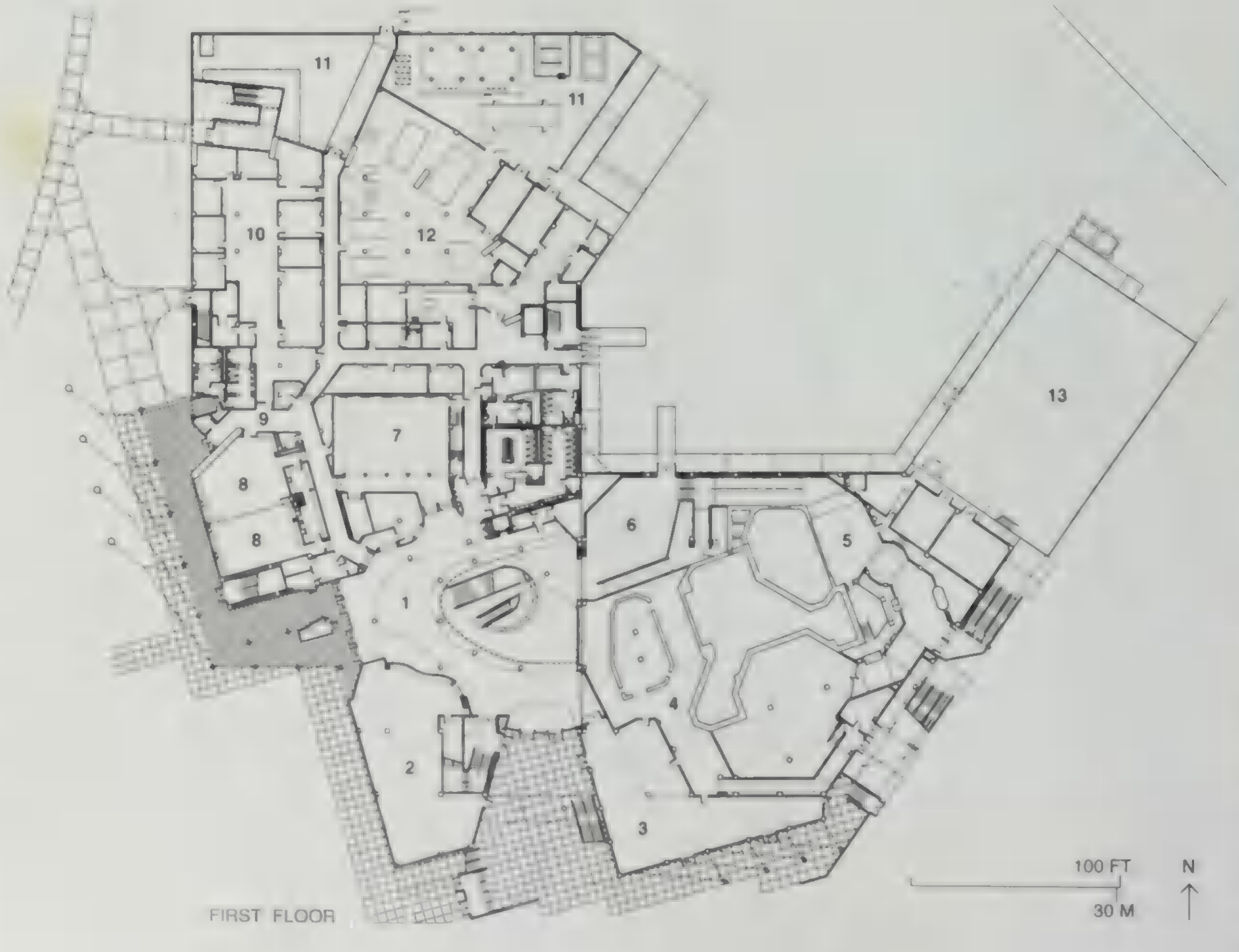


Financed with an $84-million bond issue and developed by Kajima International, the aquarium is a hybrid public-private project. The $39.3-million construction budget included $6.3 million for exhibits and resulted in a per-square-foot cost of $268, significantly below the $325 to $400 cost of most other aquariums today, say the architects. One way the architects kept building costs down was to brin certain functions outdoors. Consequently, some dining, exhibit, and social gathering areas are on decks and terraces rather than indoors. The multi-level decks offer views of the water an downtown Tampa (opposite).

The main lobby is a two-story space providing access to a restaurant, gift shop, and multipurpose room on the ground floor (left bottom). An oval-shaped gallery above connects the coral-reef exhibit with the domed wetlands area and the bay and barrier beaches displays. The gallery also provides access to an outdoor deck where visitors can take a break betwee exhibits.







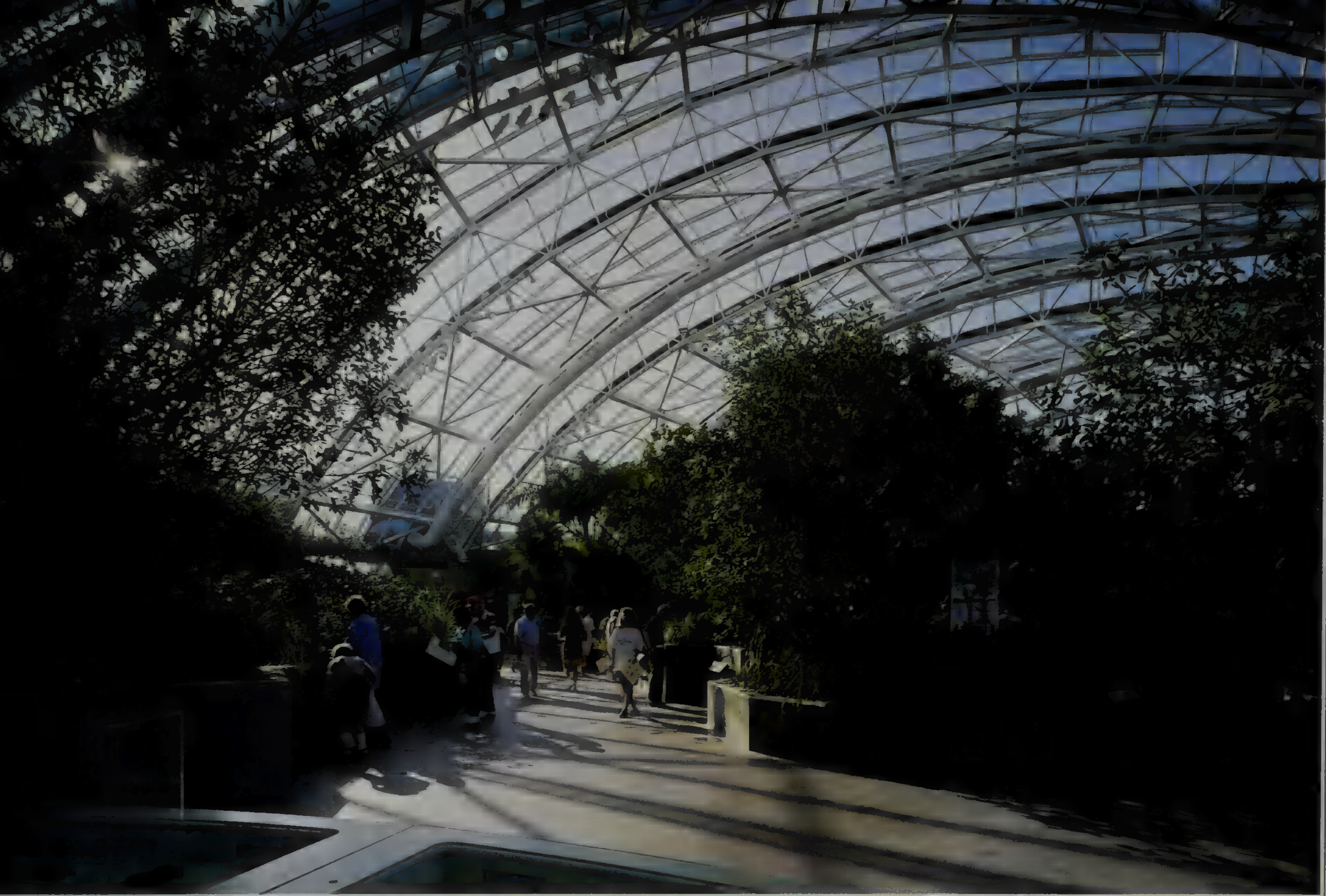
1. *Lobby*
2. *Gift shop*
3. *Restaurant*
4. *Kitchen*
5. *Gulf exhibit*
6. *Environmental exhibit*
7. *Multi-purpose*
8. *Classroom*
9. *Members' entry*
10. *Administration*
11. *Life support*
12. *Mechanical*
13. *Reservoir*
14. *Gallery*
15. *Terrace*
16. *Wet lab*
17. *Coral-reef tank*
18. *Bay and beach exhibit*

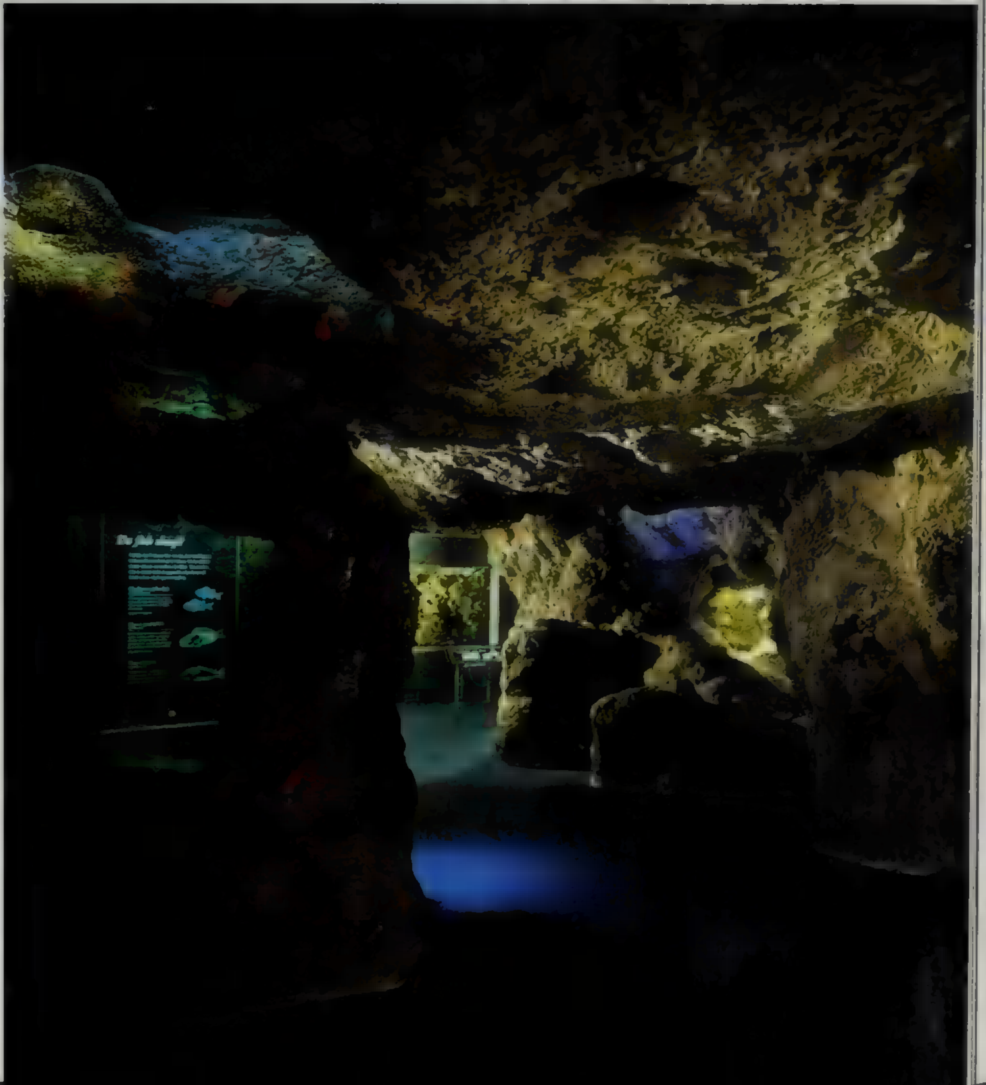
Up Close

Environmental education. To tell the story of Florida's waters and teach people about the need to preserve the natural environment, th aquarium unfolds in a series of exhibits that recall the look and feel of the animals' natural habitats. By bringing daylight into the wetlands display area, the building's segmented dome plays an important part in establishing an appropriately sunny setting (opposite top). The dome's 1,100 panes are made of two layer of 3/8-inch-thick glass and PVB with a heat-reflective film sandwiched in between. The glass lets 80 percent of visible light in, while significantly reducing heat gain. To further reduce cooling loads, the area under the dome is allowed to be a few degrees warmer than th rest of the building—recalling the state's natural climate without being uncomfortable. While the dome allows many trees and plants to grow underneath it, some of the greenery is artificial. For example, fake cypress trees actually serve as camouflage for air ducts (opposit bottom left). To further the educational missi of the aquarium, the designers inserted in the display areas two "wet labs" where children can take part in hands-on demonstrations and ask questions of the aquarium's staff (16 on floor plan, left). While many aquariums servic exhibits from behind, exhibits here are serviced from public areas out front—increasing the opportunities for visitors to ask curators and staff questions. This approach also reduc the amount of closed support space needed in the building. As visitors move from the open wetlands to the deep oceans, the exhibits change from sun-filled areas to dark cavern-like spaces (opposite, bottom right).

Credits

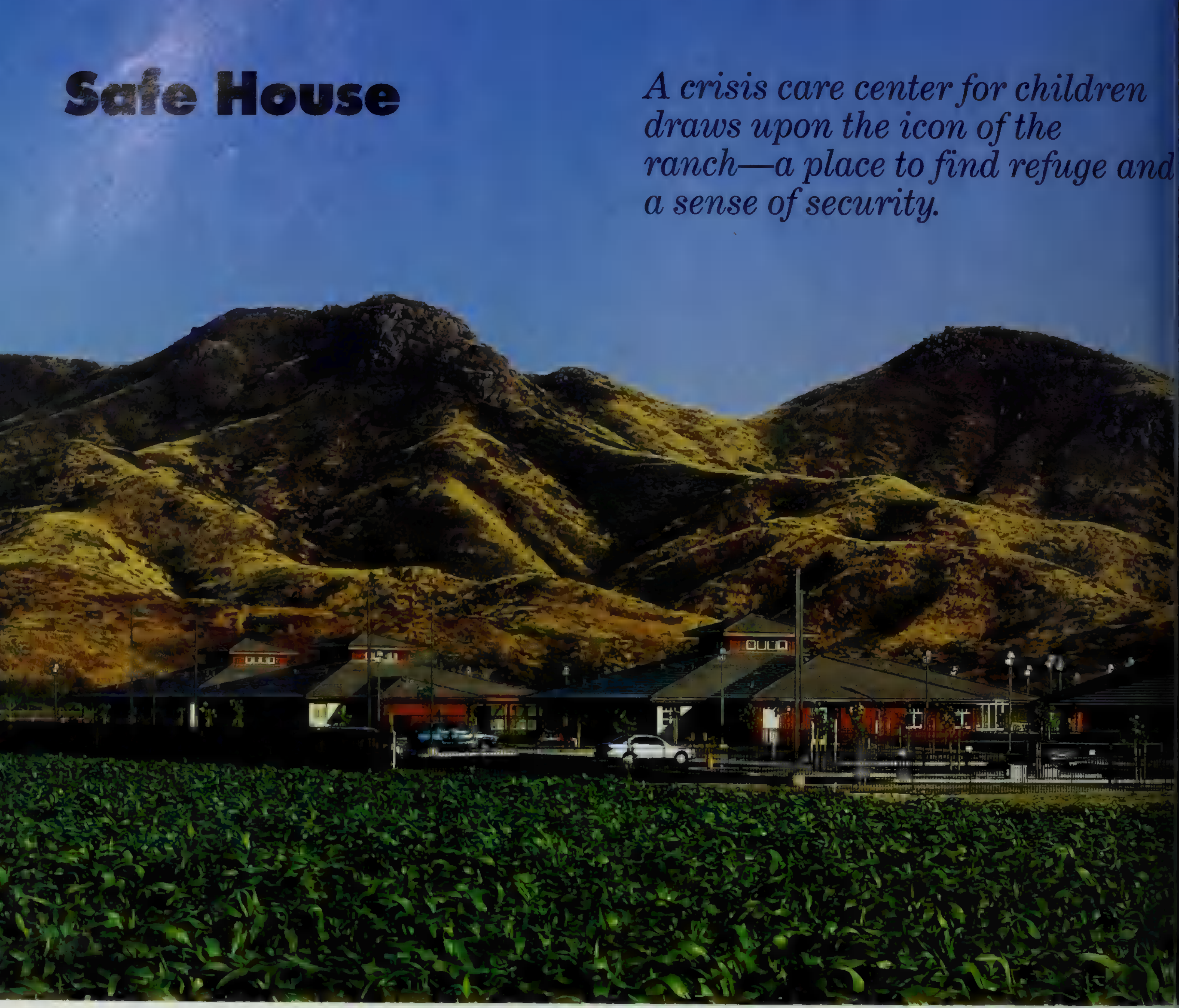
The Florida Aquarium
Tampa, Florida
Owner: *The Florida Aquarium, Inc.*
Architect: *Hellmuth, Obata & Kassabaum, Inc. and Esherick, Homsey, Dodge & Davis (joint venture)—Gyo Obata, Charles Davis, principals-in-charge-of-design; Pete Karamitsanis, principal-in-charge; Alan Temple, project manager; Jim Hastings, For Merriweather, project architects; Robert Stockdale, project designer*
Engineers: *Walter P. Moore & Associates (structural); Syska & Hennessy (mechanical/electric/plumbing/life support); Greiner (civil)*
Consultant: *Joseph A. Wetzel & Associates (exhibits design)—Joseph Wetzel, principal-in-charge; Steve Lenox, project manager*
Developer: *Kajima International, Inc.*
Contractor: *Turner Construction/Kajima International*





Safe House

A crisis care center for children draws upon the icon of the ranch—a place to find refuge and a sense of security.



The Casa Pacifica Children's Crisis Care Center strives to meet the needs of abused and neglected children, and children with behavioral problems. Teachers and social workers at Casa Pacifica attempt to instill these kids awaiting placement in more permanent living situations with the feeling that they are protected, secure from their abusive families, and in a stable environment. Nobody disputes that nice facilities are not, to those in need, a substitute for nurturing by caring individuals. Casa Pacifica goes a step further to ensure the children do not get the feeling they have been sent to a punitive environment dressed up like a home—the complex is unfenced except for the parking lot, and windows are not barred or covered with sheets of expanded metal. It is the homiest place in which many of these kids have ever lived.

Architect Bobrow/Thomas Associates' plan for the shelter and architectural typology draw heavily upon the agricultural character of the [illegible] of surrounding Ventura County, California. "Our goal," says [illegible] Thomas, "was to create a sanctuary for the abused children, and for the children who were psychologically disturbed, a very non-threatening setting. That was why we chose the image of the ranch, which was in touch with the earth."

But the conception of this image was not entirely the architects' domain—members of the legal profession, social-services people, psychologists, concerned parents, and other community volunteers were all involved. Michael Bobrow adds, "I think the unique part about this place is that it was a partnership between a group called the Youth Connection, a non-profit group, and the County of Ventura. This was stimulated by one of our local judges who had been working a lot with these kids, and felt that the system was screwed up and needed to be changed. This occurred only because the non-profit group was able to more than match the county's funds, and that was the push that made it happen."

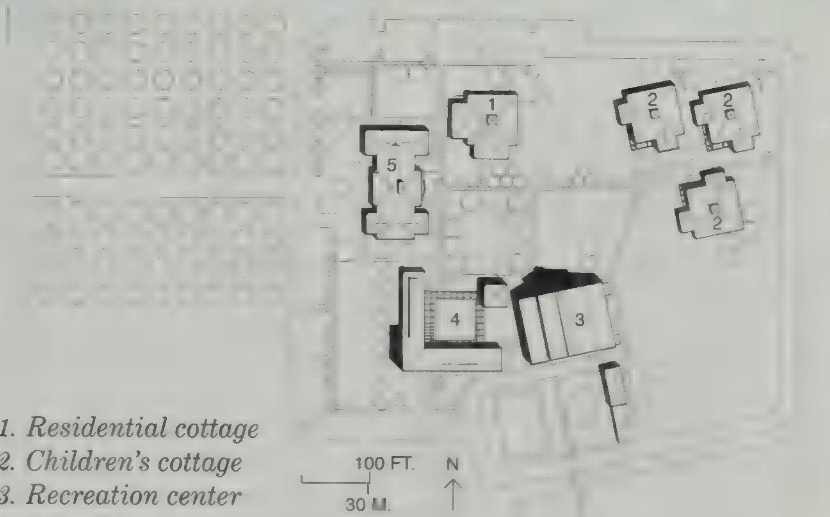
Even from the road, the 22-acre complex of orange, wooden buildings appears as a ranch-like sanctuary, or one of the equestrian-oriented boarding schools in nearby Ojai. The image is derived from the form of the buildings and their redwood siding, tiled roofs, and trellised

Casa Pacifica Children's Crisis Care Center
Camarillo, California
Bobrow/Thomas Associates, Architect

lkways, and the way the school, administration building, cottages,
d recreation center are sited slightly askew from one another, as if
ey really were built one by one during the 19th century, without the
d of a surveyor's transit.

e interiors of the children's cottages are oriented around a central
ing space so that children can easily be observed while still having a
nse of privacy. The roofs and daylight monitors are supported by
minated-wood beams that suggest agricultural shed construction. In
ne, more cottage buildings will be added, so the school can grow
om 75 residents to 110.

e rural setting also gives the children a place to work, and a sense
ownership of their home, albeit temporary. This was also seen as
e key to making their stay successful. "The sense," says Julia
omas, "was the more that children felt responsible for their envi-
nment, that they could garden and work in the orange groves, the
ore it would give them an understanding of values." *Charles Linn*



1. *Residential cottage*
2. *Children's cottage*
3. *Recreation center*
4. *School*
5. *Administration*

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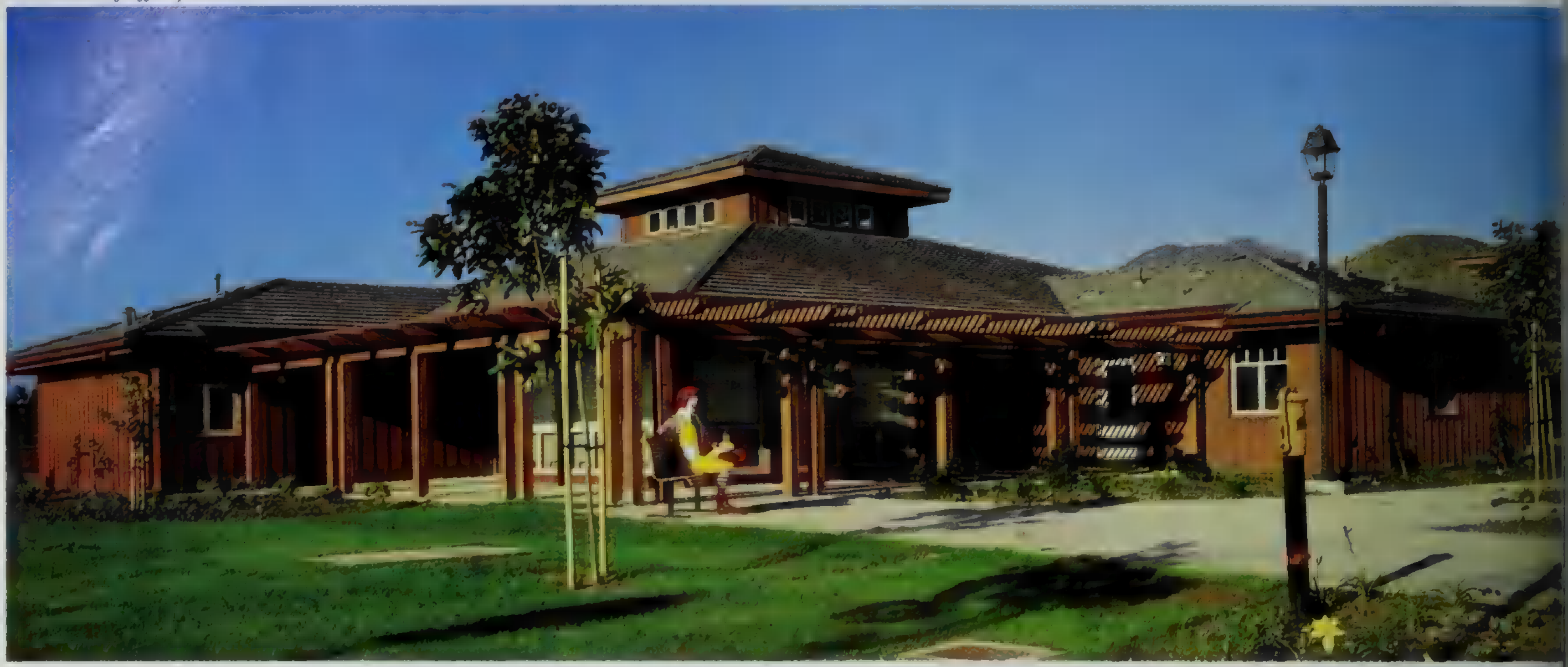
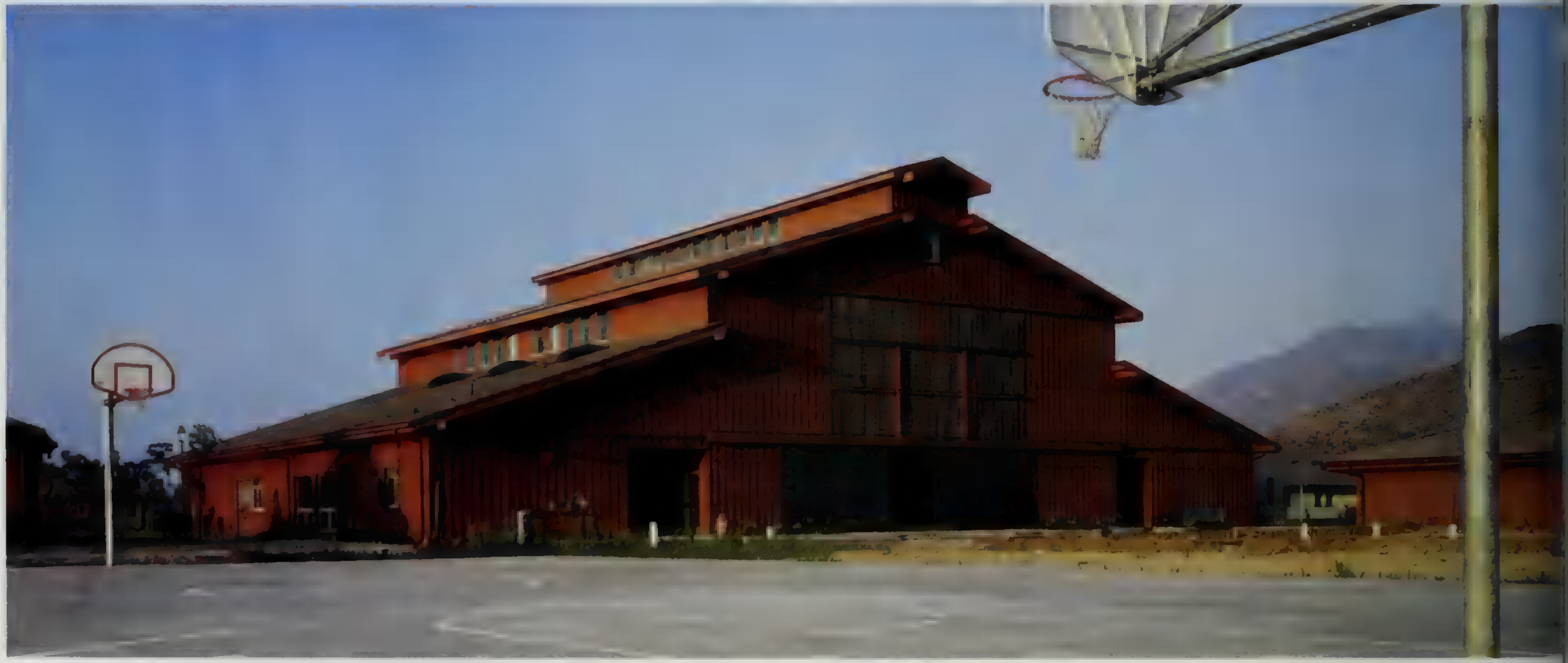
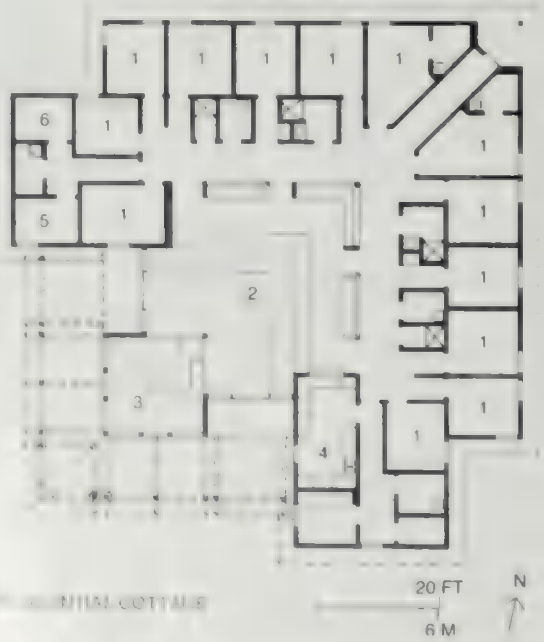
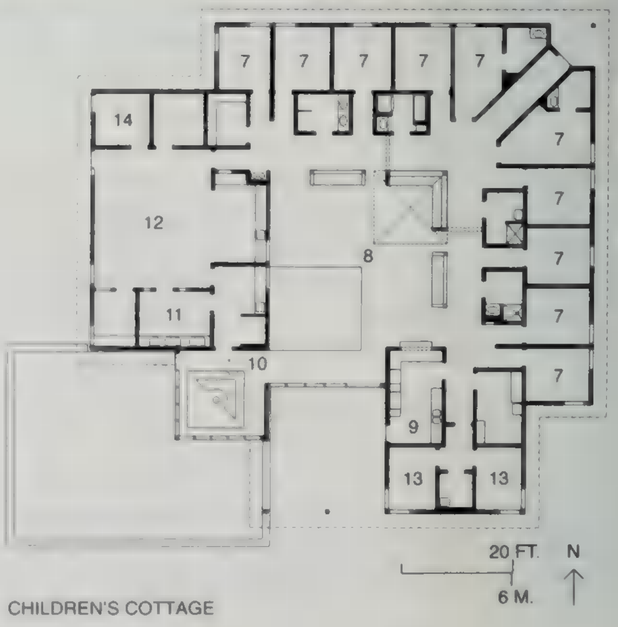
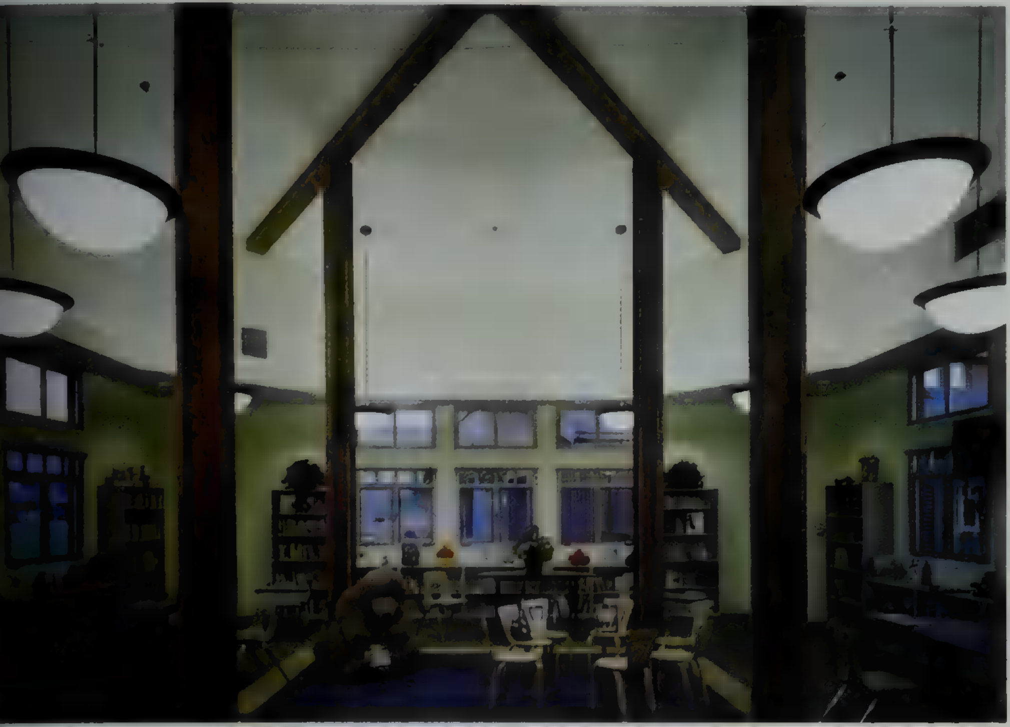


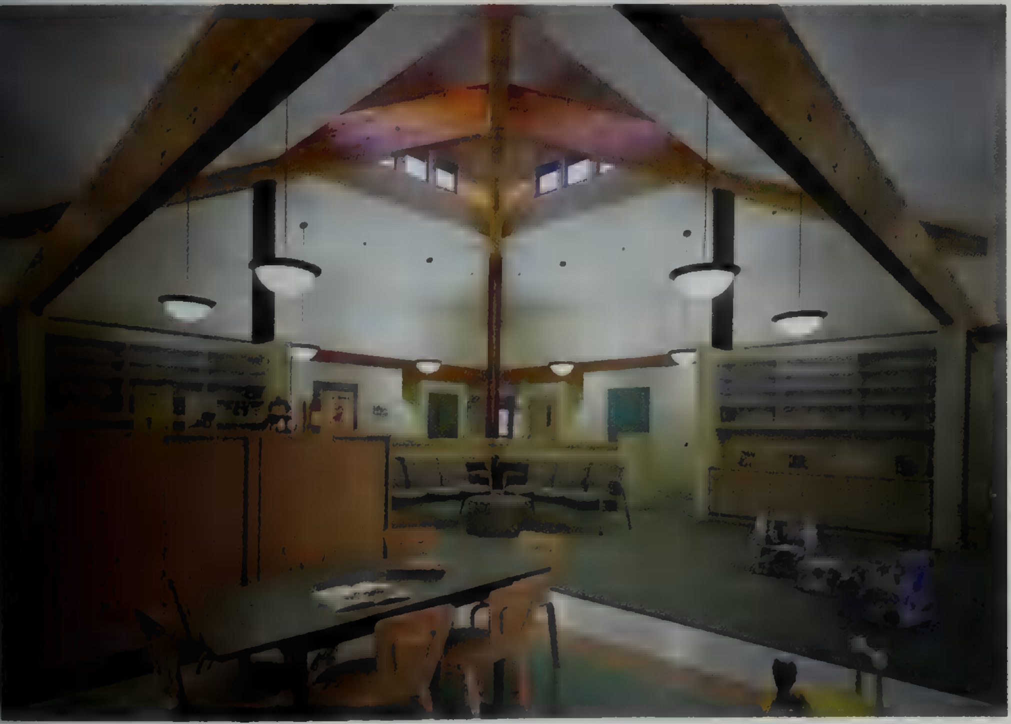




1. Bedrooms
2. Day room
3. Dining room
4. Kitchen
5. Office
6. Mechanical
7. Bedrooms
8. Day room
9. Kitchen
10. Play area
11. Bathing
12. Nursery
13. Office
14. Mechanical



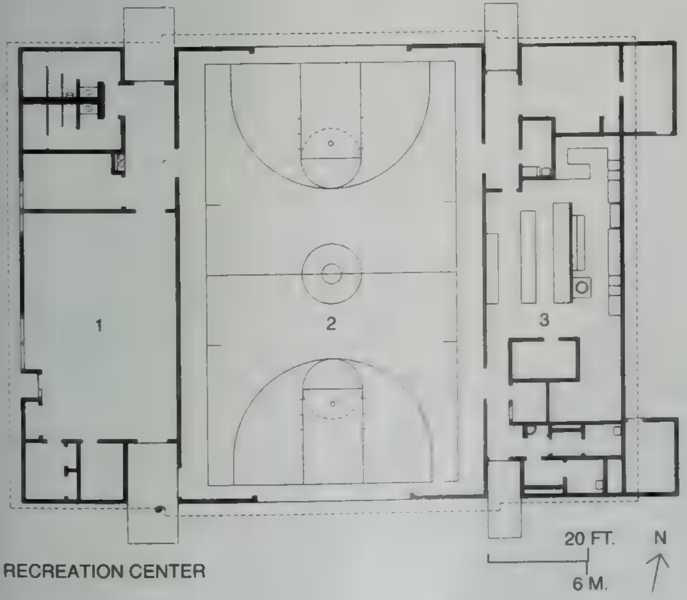




The residential cottage, with its trellised walkway (opposite top), and the recreation center (opposite bottom) with its decidedly barn-like form, are definitive representations of Bobrow/Thomas's desire to make the Casa Pacifica Children's Crisis Care Center appear as if it were a ranch with bunkhouse, barn, and outbuildings. The style is appropriate for rural Ventura County, California, and the setting represents an image of security needed by neglected and disturbed children. The less rustic-looking interiors of the library (top left) and the day room of the school building (bottom left) use traditional post-and-beam construction, but are softened by carpeting, drywall ceilings and walls, and daylighting.

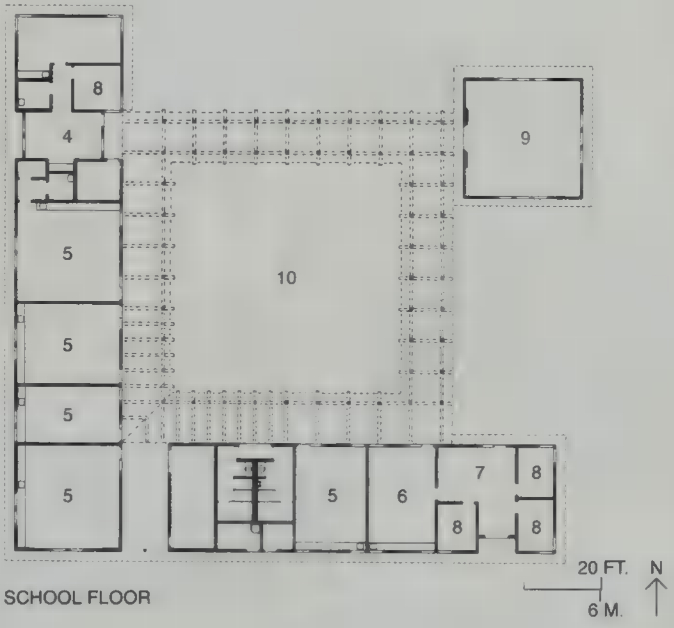
Credits

Casa Pacifica Children's Crisis Care Center
Camarillo, California
Client: *Pacifica/Youth Connection*
Architect: *Bobrow/Thomas Associates—Michael Bobrow, Julia Thomas, design principals; Chet Wing, David Burdick, managing principals; Malcolm Brown, Sina Yerushalmi, senior designers; John MacAllister, Frank Yu, Lori Selcer, Judith Rinda, project team*
Consultants: *Freet, Yeh & Rosenbach (structural); Rosenberg & Associates (mechanical); Cohen & Kanwar (electrical); Bruton & Spitz; Dayle Henry (landscape architects); Frances Elson (finishes, furnishings, artwork)*
General Contractor: *HMH, Inc.*



RECREATION CENTER

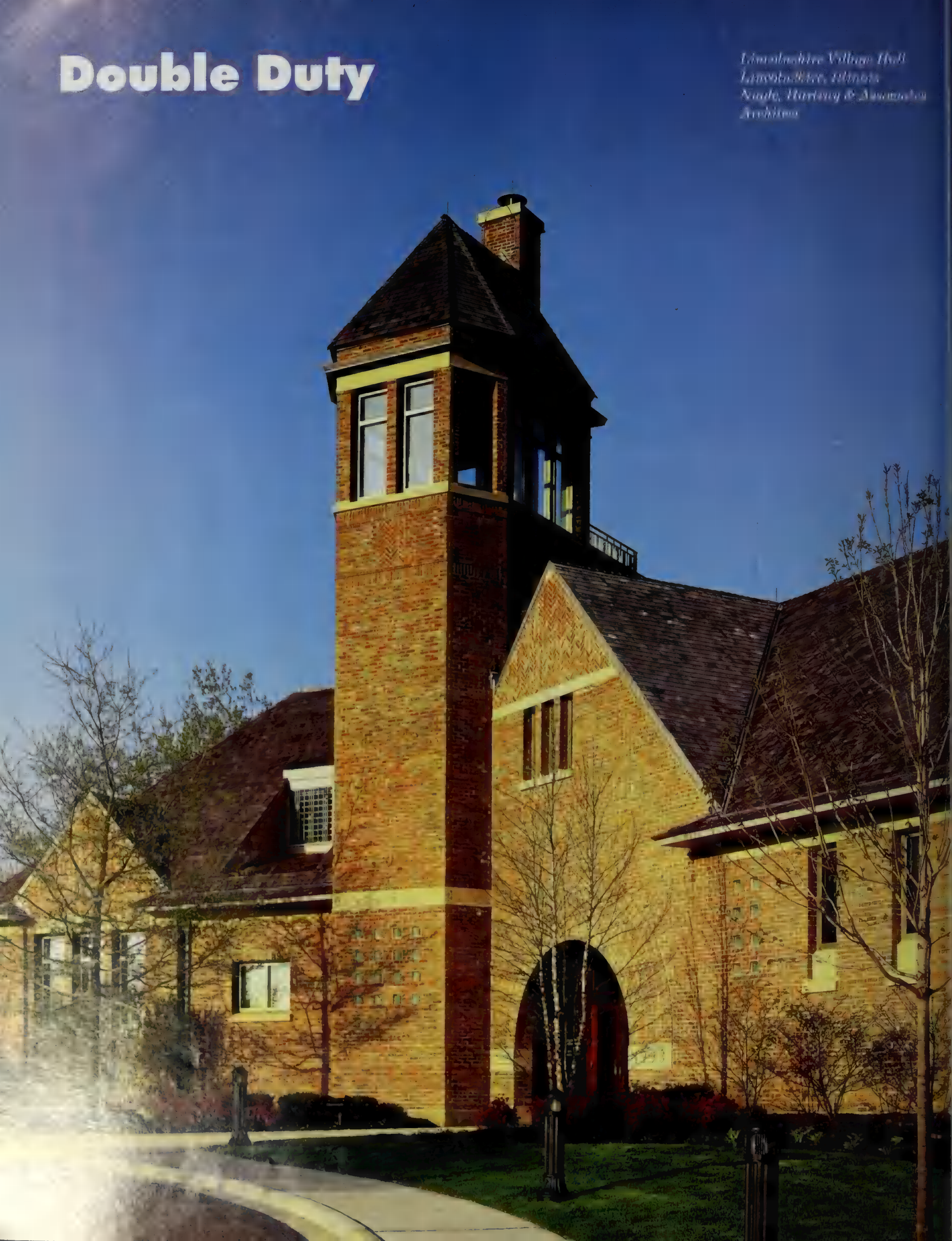
1. *Art and recreation room*
2. *Gymnasium*
3. *Kitchen*
4. *Reception*
5. *Classroom*
6. *Day treatment*
7. *Runaway program*
8. *Office*
9. *Library*
10. *Courtyard*



SCHOOL FLOOR

Double Duty

Lincolnshire Village Hall
Lincolnshire, Illinois
Nagle, Hartray & Associates
Architects



colnshire is a Chicago suburb deep in the throes of growth many burbs are going through today. In the case of Lincolnshire, new velopment will be controlled under Nagle, Hartray & Associates' ster plan for the village center. It unites existing buildings and going new construction around such time-honored foci as a main eet and village green, and preserves large open spaces and areas woodland. The architects became involved with the center's future me three years ago, after they proved themselves with their pro- amming and design for Lincolnshire's new village hall. The timing oved propitious. Recent development proposals are accelerating d, by now, might well have gone too far to allow any kind of master n to work. Already, the population of 4,500 permanent residents ells to 40,000 people during the day when workers converge on an ice park located west of the village center.

e 28,000-square-foot Lincolnshire Village Hall contains three imary components: meeting rooms, administrative offices, and a lice station, complete with detention facilities, which occupy much the ground floor (plans overleaf). Beyond these practical needs, extensive programming process determined more far-reaching jectives. In working with the future staff, the general public, and a lage board consisting of six trustees and a mayor, the architects nd a consensus that the building should be a model for future velopment, both in enduring quality and solid appearance. It was encourage a direct relationship between the public and the admin- ration, and be environmentally sensitive above the norm, including undant outside light and energy-efficient mechanical heating and oling with maximum safety from duct contamination.

d by principal-in-charge Donald McKay, the architects responded th an open-ended courtyard design that fit well into a natural slope ar a lake. The result was a low building entered on the second floor pposite) facing the residential area to the east, with a taller civic esence (right) toward the village center to the west. The courtyard n allowed floors with relatively narrow floor plates, providing erior daylight which, on the second-floor administrative areas, sses over low partitions to brighten interior corridors. The short ans suggested a precast concrete-plank and load-bearing masonry terior wall-construction system. This helped keep the cost of the ilding down to $3.75 million despite its sophisticated systems and rable finishes. As exemplified by the board room (overleaf), the blic spaces are a model of the democratic process that encourage eraction between the public and its government at every level.

onically, the imagery of the building's exterior became the one cking point between architects and village board. Nagle, Hartray oposed a barrel-vaulted terne roof and squared profiles for the wer and entrance. That design was to win an AIA Chicago Chapter ard for unbuilt projects. Although it contained historic precedent miniscent of the best public buildings of the 1930s and 1940s, it peared more modern than what the board had in mind. The final sult is nonetheless a thoroughly modern building, within a easingly Romanesque skin. *Charles K. Hoyt*

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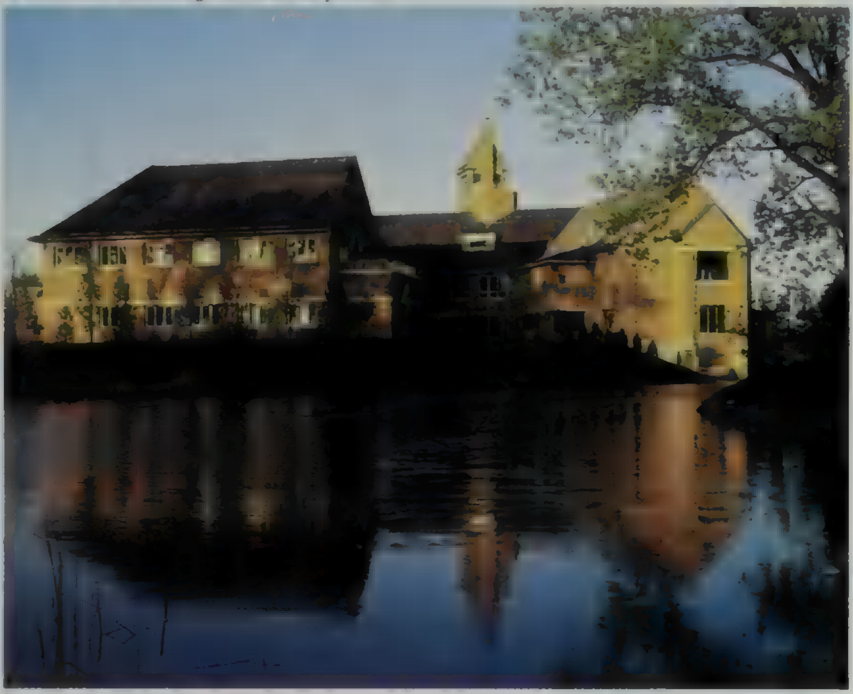
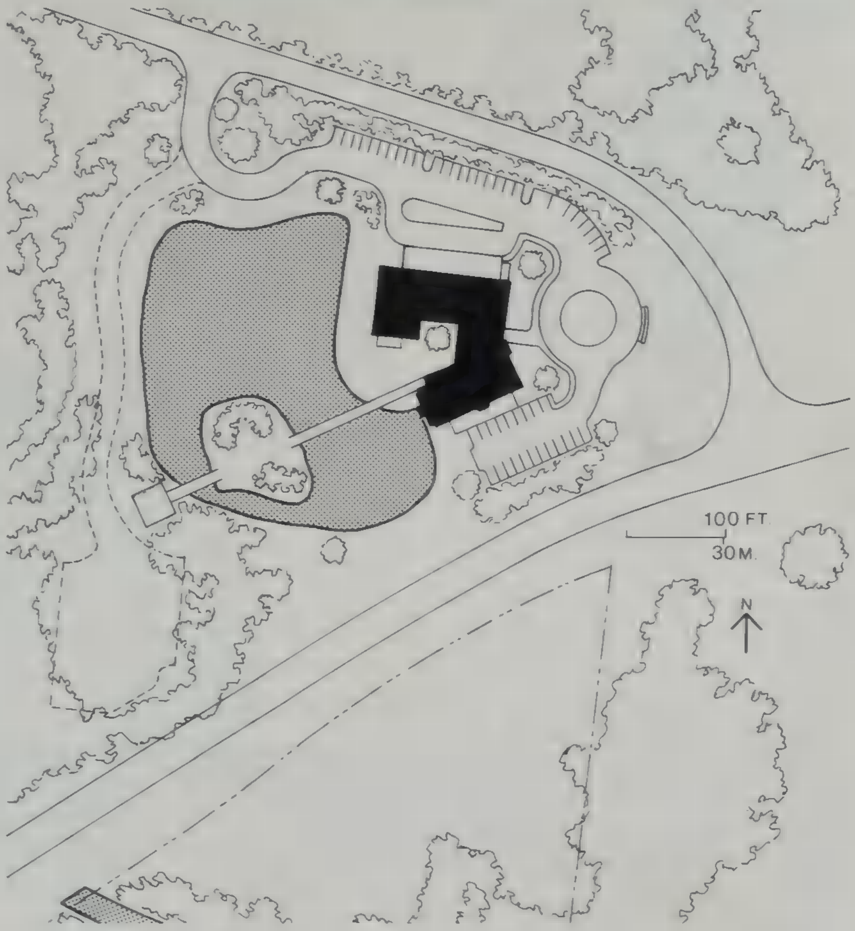
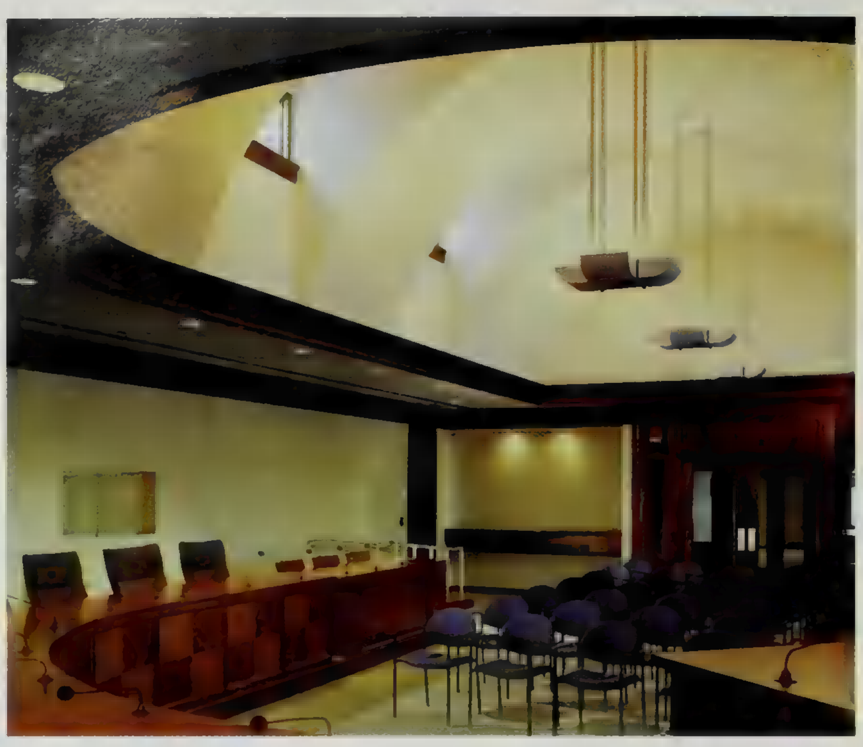
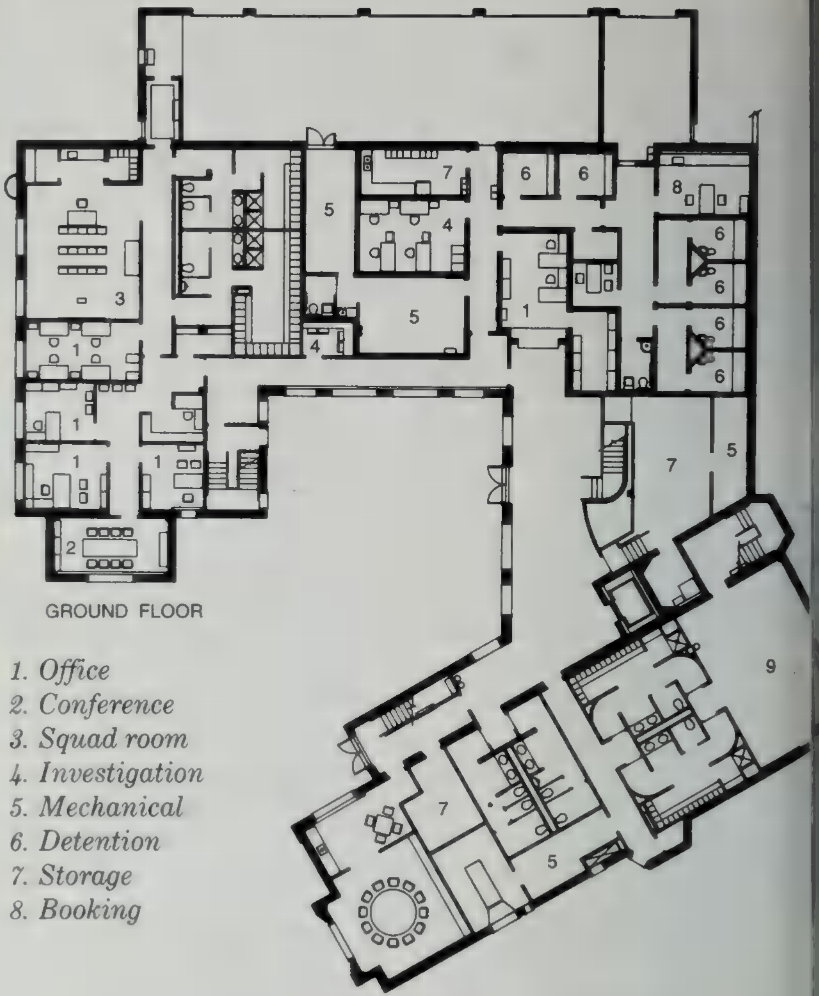




Wood shingles, warm brick facing, and a belt course embossed with the village's tri-leaf emblem give the new civic building its particular sense of place—and represent a model for future development. The tower is used by local school children to gain a bird's-eye view of their surroundings. A bridge links the facility with the village center to the west.

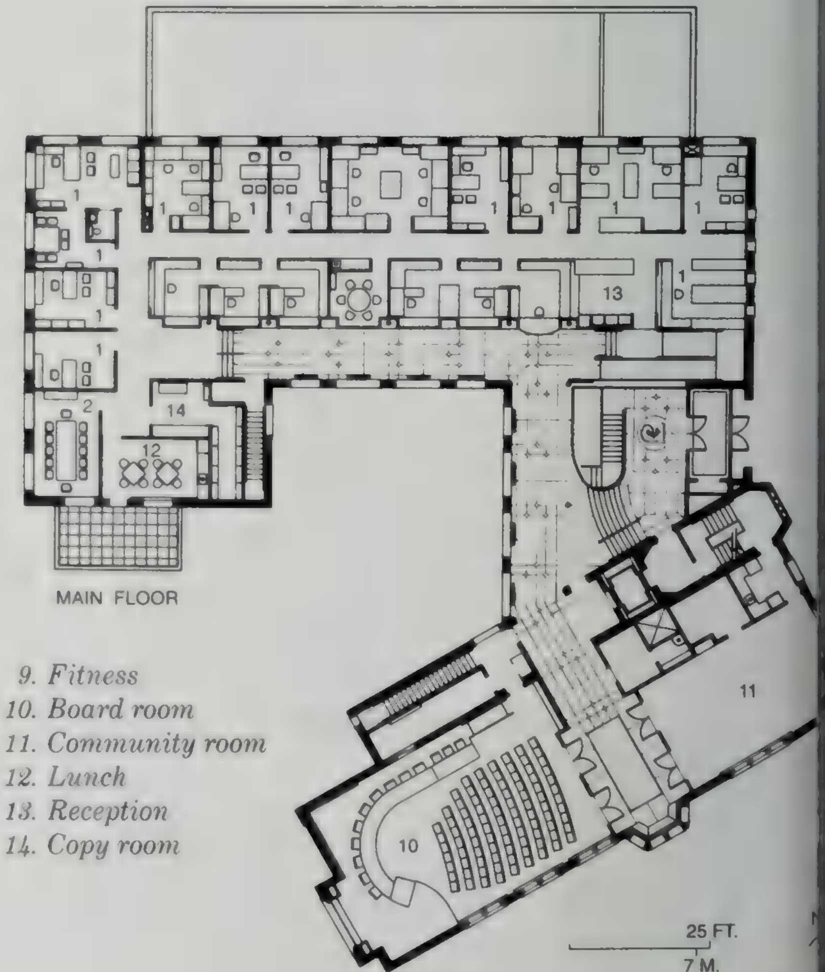




1. *Office*
2. *Conference*
3. *Squad room*
4. *Investigation*
5. *Mechanical*
6. *Detention*
7. *Storage*
8. *Booking*

The arrangement of seating in the village's boardroom (above) promotes eye-to-eye contact among the mayor, trustees, and citizens. The main lobby (opposite) opens directly to administrative offices seen over the partitions in the background. Workers gain a degree of privacy by having their work spaces elevated several steps above the public corridors.

Credits
Lincolnshire Village Hall
Lincolnshire, Illinois
Architects: *Nagle, Hartray & Associates—James Nagle, principal; Donald McKay, principal-in-charge; John Gleichman, associate principal; Carl Gergits, David Wahl, Peter White, Sharon Portnoy, project team*
Engineers: *WMA Consulting Engineers (MPE); Beer, Gorski & Graff, Ltd. (structural); SDI Consultants, Inc. (civil)*
General Contractor: *Valenti Builders, Inc.*



9. *Fitness*
10. *Board room*
11. *Community room*
12. *Lunch*
13. *Reception*
14. *Copy room*

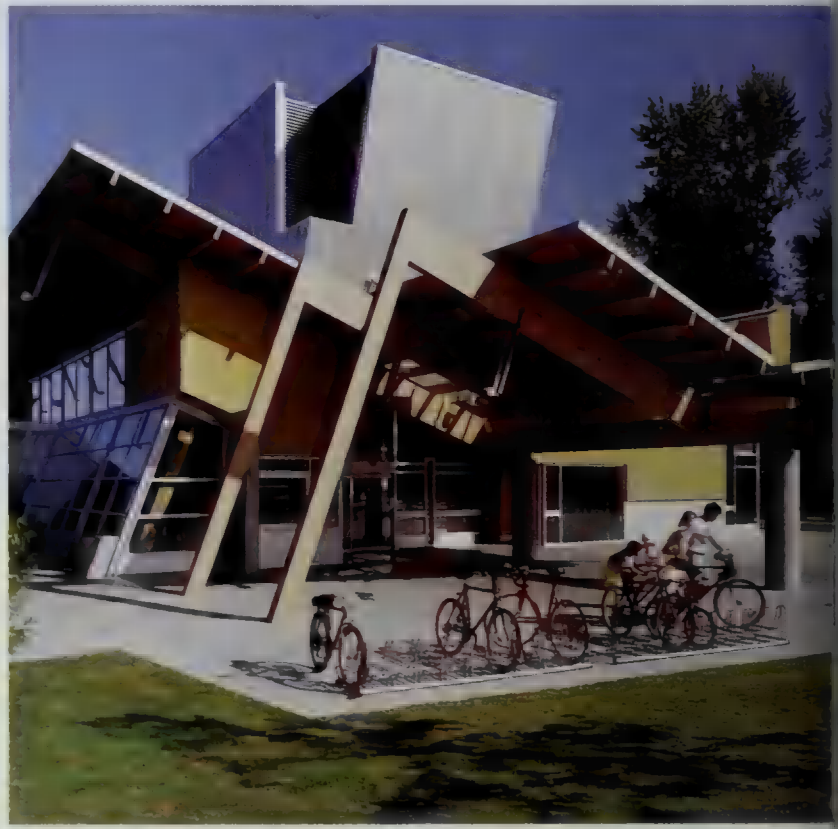
Three Libraries

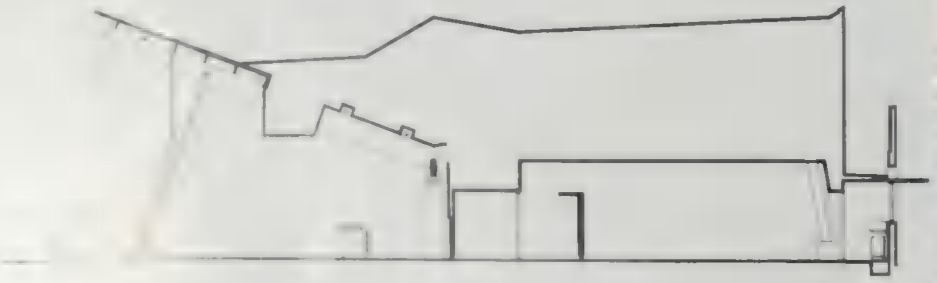
Samuel Johnson wrote, "A man will turn over half a library to make one book." Possibly the architect of the libraries on the following pages drew upon nearly that many sources when they designed ther Patkau Architects' Newton Library, Ross Barney Jankowski Architect's Barrington Area Library, and David Prendergast's Sedgwick Branch Librar all use form to make their buildings much more than cloisters for study, or repositories for dusty documents. Libraries are, at least in these

Newton Library
Surrey, British Columbia

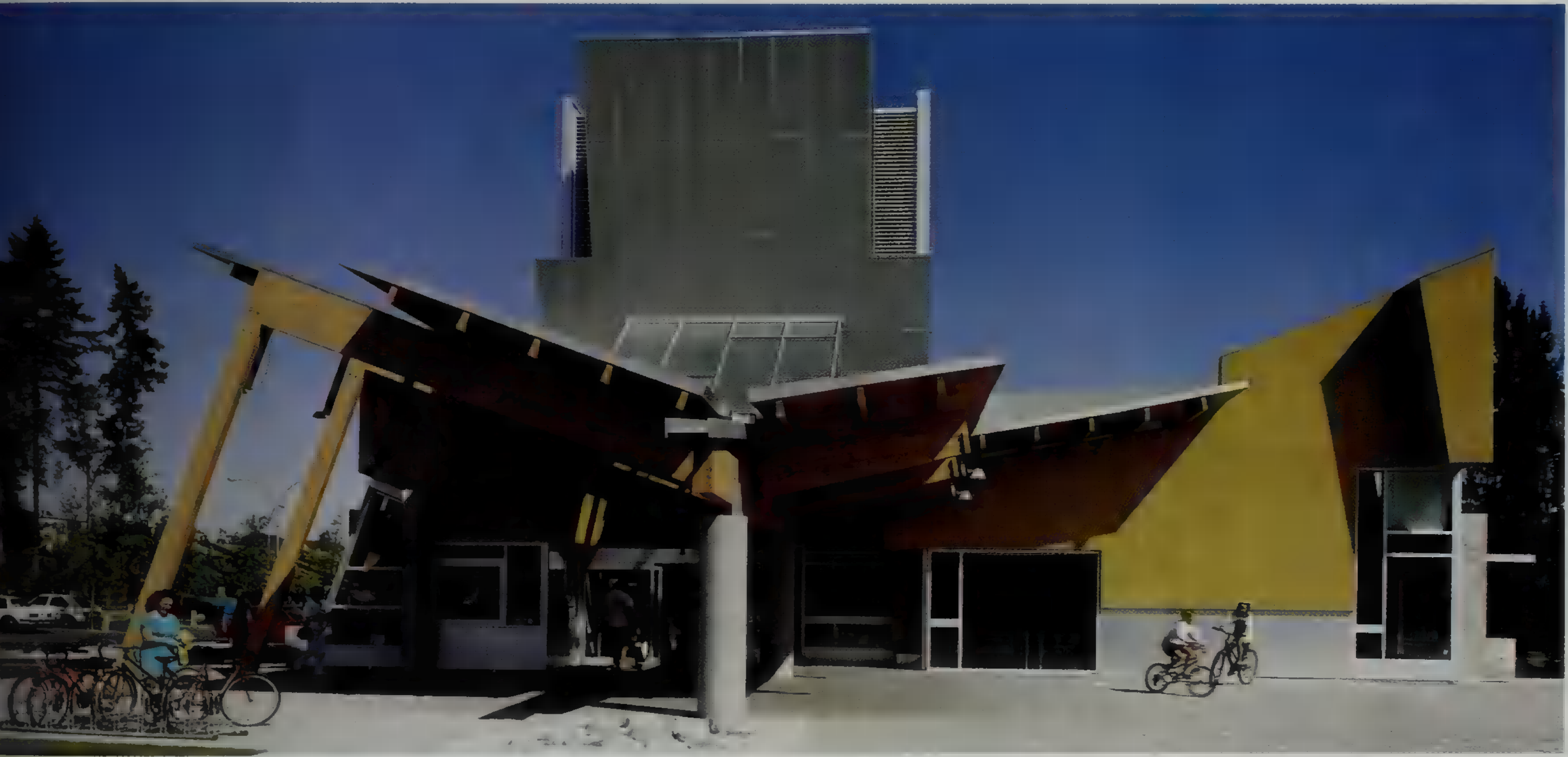
From some angles it looks like an open book, and, in fact, the Newton Library's structural system is easily read from the outside. The glulam columns and beams of the roof and structural frame sit atop a concrete foundation, a combination of materials the architects say were inspired by "the sticks and stones of the region." In addition to giving the facility presence in a suburban neighborhood, the winged roof forms also draw natural light inside, where it is then reflected off interior painted surfaces to softly illuminate deeper reaches of the floorplate. Offices are clustered along the perimeter, leaving an uninterrupted south-facing space as a giant reading room. *K.D.S.*

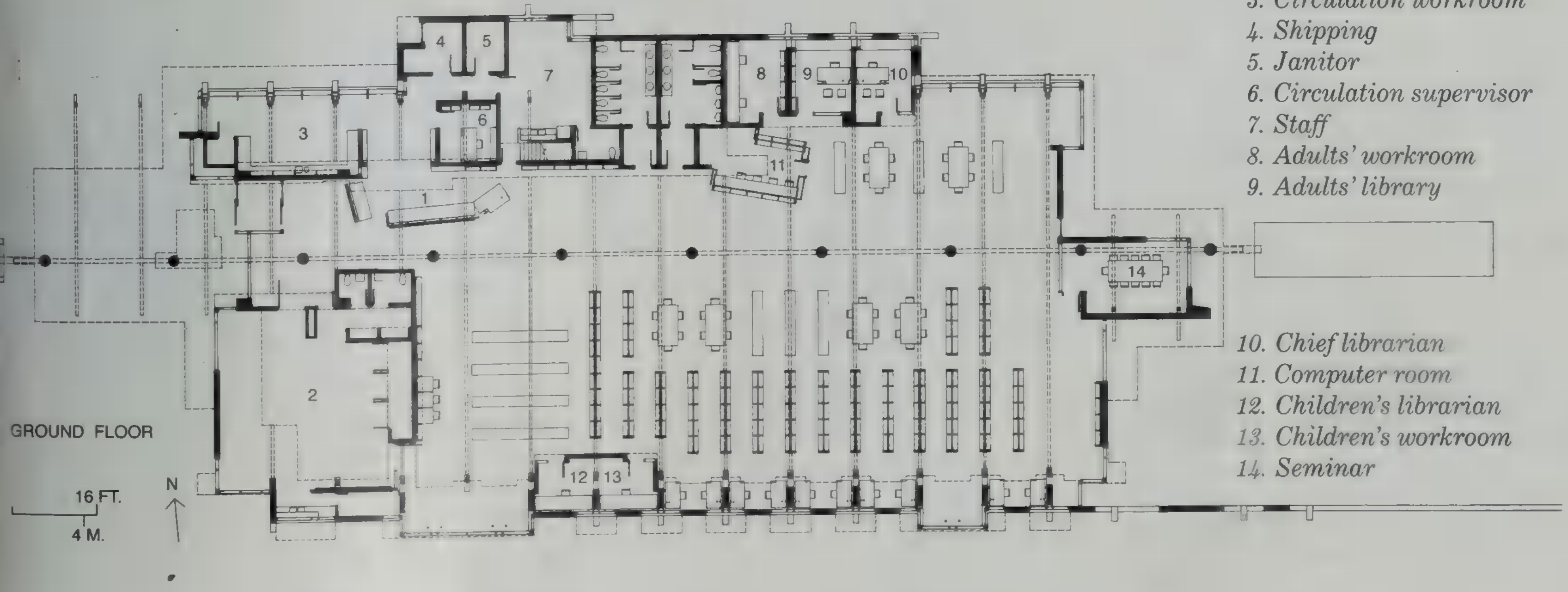
Credits
Newton Library
Surrey, British Columbia
Owner: *Corporation of the District of Surrey*
Architect: *Patkau Architects—John Patkau, Patricia Patkau, Michael Cunningham, David Shone, Peter Suter, project team*
Engineers: *C.Y. Loh Associates (structural); D.W. Thomson Consultants (mechanical)*
Consultants: *B.T.Y. Group (quantity surveyors); Brown Strachan Associates (acoustics)*
General Contractor: *Framer Construction Ltd.*





xamples, fun places to go play with a computer, atch a movie, listen to a story or music, and iscover books. The Modernist-box library seems, r the time being, to have been put on the shelf. hat could have been predicted, when Daniel oorstin, former Librarian of Congress, said of the ibrary's own 1980 Modernist box: "When they uilt this building they were afraid to say that eauty is truth for fear that it wouldn't be by the me it was completed."—C.D.L.





1. *Circulation desk*
2. *Multipurpose*
3. *Circulation workroom*
4. *Shipping*
5. *Janitor*
6. *Circulation supervisor*
7. *Staff*
8. *Adults' workroom*
9. *Adults' library*
10. *Chief librarian*
11. *Computer room*
12. *Children's librarian*
13. *Children's workroom*
14. *Seminar*

Sedgwick Branch Library
Bronx, New York

A temporary branch of the New York Public Library had outgrown its cramped quarters in a converted Chinese restaurant on University Avenue in the Bronx. In 1986, New York City architect David Prendergast was asked by branch administrators to conduct site studies to relocate the facility. Since the branch had received private funds to partially cover the expense of a new building and an expanded collection, the project was able to circumvent some of the more time-consuming regulations of the city's Department of General Services, which would have necessitated a lottery-type architect-selection process. Prendergast, who had worked on library projects in lower Manhattan, was hired directly by library administrators.

After several delays, the city provided a site down the street from the branch's previous location—a truncated triangular lot at the end of a block. Although Prendergast contemplated a hollow trapezoidal scheme with an interior courtyard, he eventually rejected it because of its essential aloofness, particularly inappropriate in a neighborhood struggling for community renewal. Instead, Prendergast configured an L-shaped plan with a canopied main entrance along heavily trafficked University Avenue, and a metal-clad cone-shaped auditorium anchoring the short leg of the L (plan following pages). Working with artist Sandy Gellis, he conceived the residual space as a playground of sorts for passersby. Gellis embedded mica rocks in stepped waves of concrete and dotted the pavement with bollards and phosphorescent-painted steel rings for extra sheen, creating an urban-lunar landscape.

The long bar of the 3,900-square-foot structure faces south, and an interior gallery that runs the entire length is shielded from direct sunlight by narrow metal canopies and wire mesh security grilles canted slightly away from windows (the grilles fold up from the exterior wall for window washing).

Inside the concrete-block bearing wall structure is a loft-like reading room topped with a 13-foot-high metal deck ceiling. A circulation desk separates adult and children's reading areas and allows librarians to easily monitor activity at the main entrance and in the [illegible]. A $1.2-million budget required [illegible] sturdy finishes: carpeted or uncarpeted concrete floors and plastic laminate [illegible], brightly colored walls and signage

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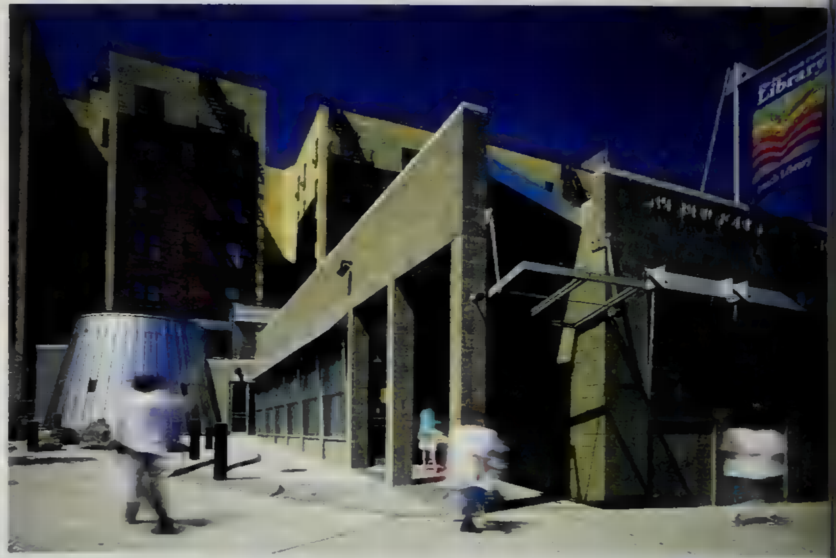
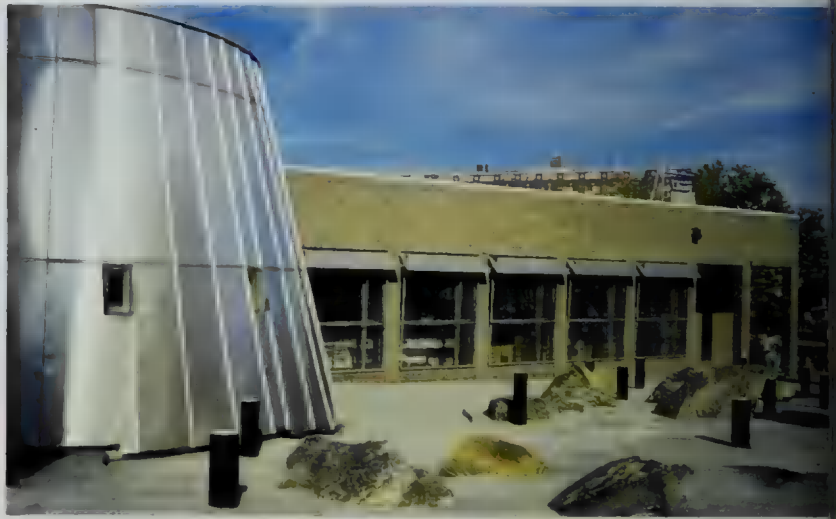
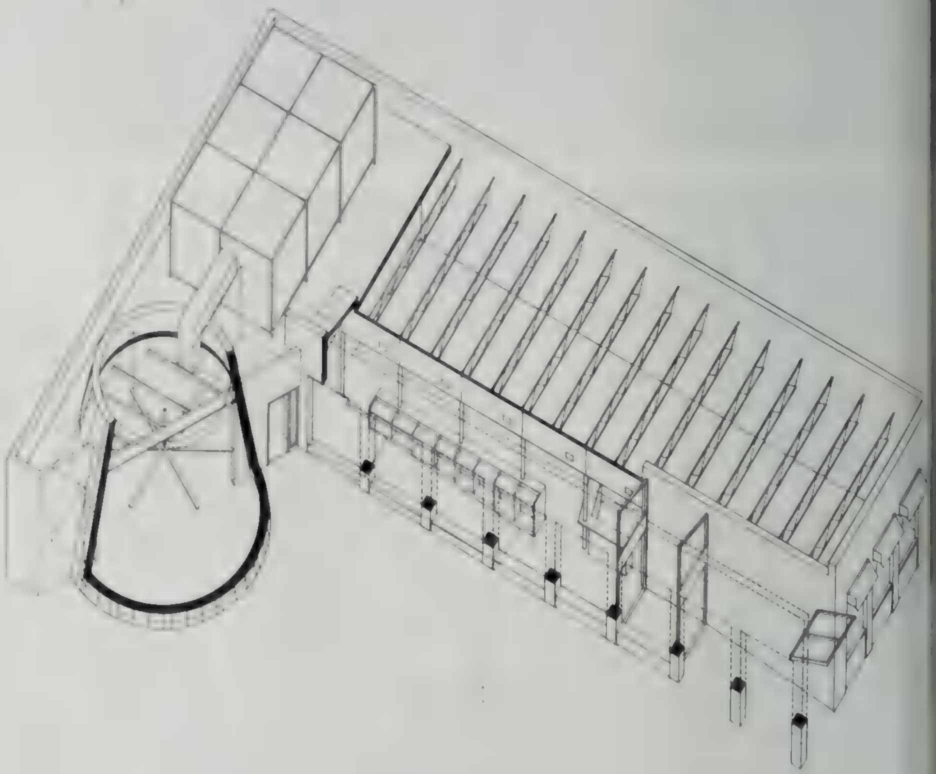


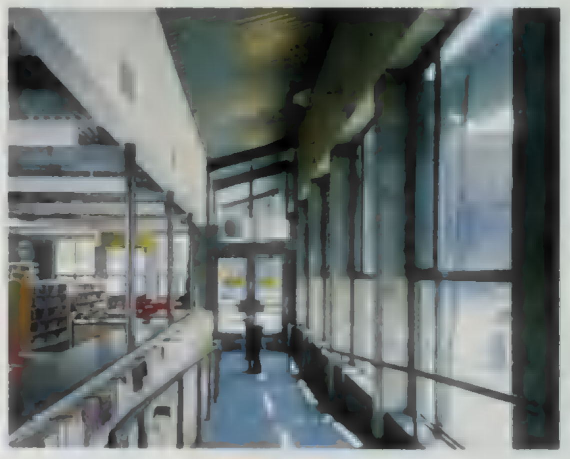


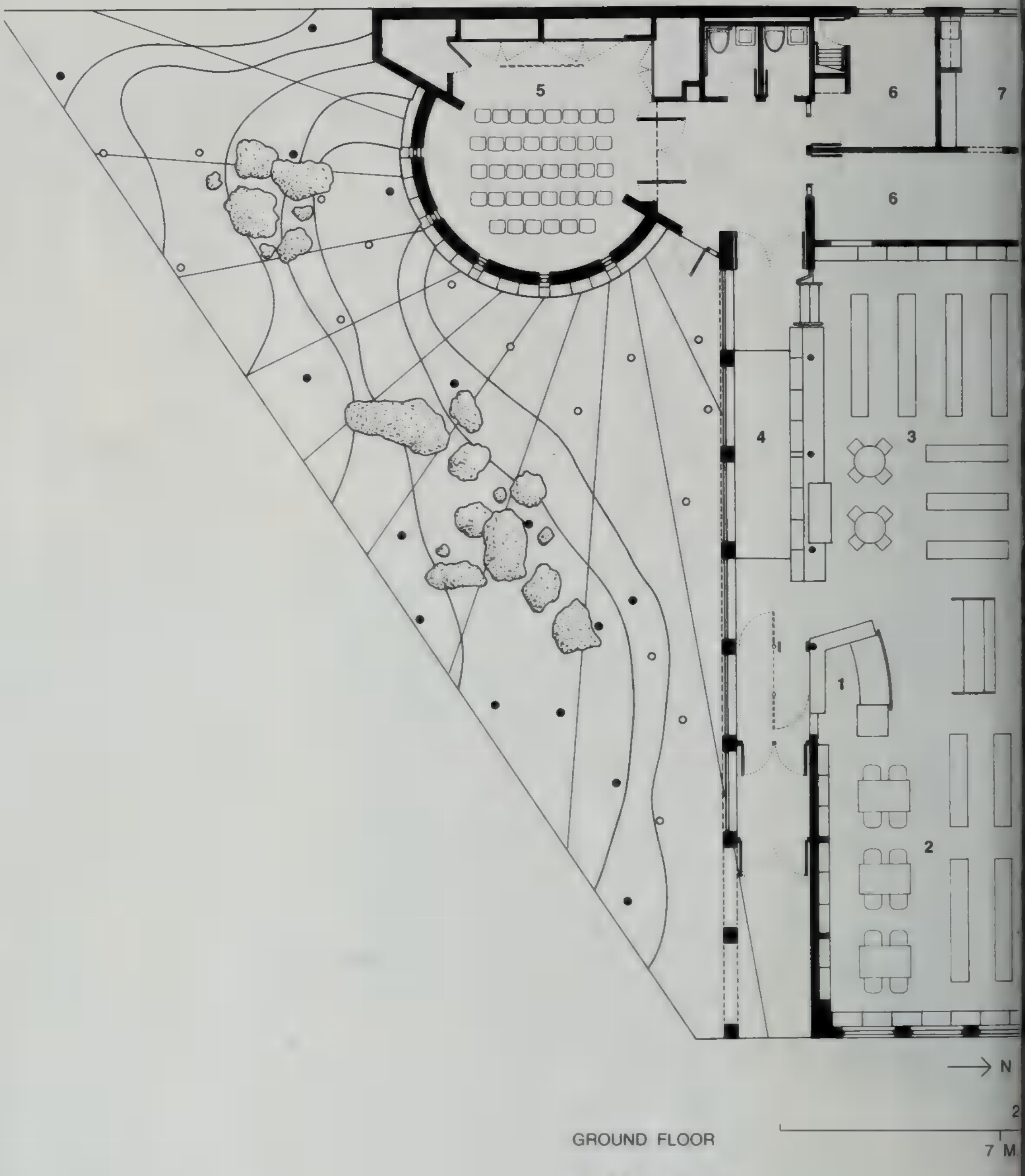


identify distinct library activities. Red-painted wood chairs are designed by Marco Pasanella (opposite).

To further encourage neighborhood participation in the library, Prendergast designed the auditorium/lecture room as, what he calls, "a giant tepee," with its own entrance, allowing use after library hours. The room's round plan is intended to emphasize a sense of community, says the architect. Its steel-stud structure, clad in wood and then covered with wedge-shaped panels of mill-finished stainless steel, rises to 15 feet at its peak.
Karen D. Stein

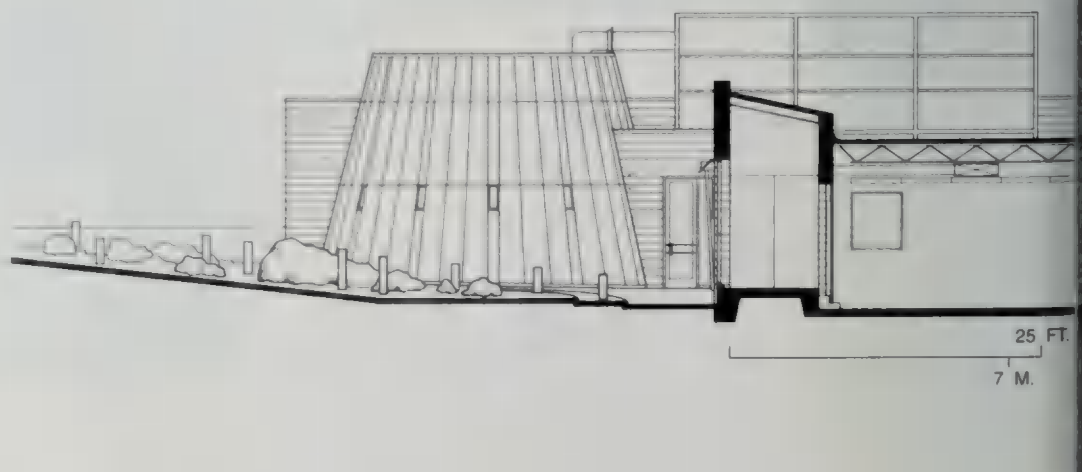
Credits
Sedgwick Branch Library,
Bronx, New York
Owner: *New York Public Library*
Architect: *David W. Prendergast, Architects—David Prendergast, principal-in-charge; Jeffery Magella, job captain; Deborah Laurel, project team*
Engineers: *Stanley Goldstein PC, (structural); Mariano Molina, PC (mechanical/ electrical);*
Consultants: *Sandy Gellis (art); Signe Nielsen (landscape); Tom Wojciechowski (graphics/signage)*
General Contractor: *AJ Contracting Co.*





GROUND FLOOR

1. *Main desk*
2. *Adult reading*
3. *Children's area*
4. *Gallery*
5. *Auditorium*
6. *Office*
7. *Staff lounge*



ATION
CIRCULATION
INFORMATION
CIRCULA
For Use in Library Only
VISUAL 2000

Barrington Area Library
Barrington, Illinois
Ross Barney Jankowski Architect

"This may be the most difficult design challenge I ever faced," says Carol Ross Barney of her firm's 30,700-square-foot, $5.2-million "addition" that substantially reorganizes and more than doubles the size of a 10-year-old existing library located in a semi-rural area at the outer edge of Chicago's suburbs. First, the client was not one community with cohesive desires, but a committee representing 50,000 people in several municipalities—each with its own self-image and ideas about the facility that would best serve it. Diverging visions can be seen today in the landscaping that border the library. Individual sections were designed by the towns' respective garden clubs and vary from rigid formality to artful rusticity. The towns did have in common the name Barrington (Barrington, Barrington Heights, Barrington Plain, etc.) and, most important, a dedication to make their shared facility work.

The original two-story building was a straightforward flat-roofed, brick-clad, concrete-frame structure. The older structure's bulk was softened by single-story projecting elements with sloping roofs around its peri-meter, and further reduced by sloping the grade down toward the south side and partially recessing the first floor below ground level. Both existing devices tended to make the interior somewhat dark. But this respect for the large, mostly natural site—made feasible by a high ratio of unbuildable wetlands—was one attribute the client-committee members mutually admired. It was a design direction that the architects would build on.

The second problem the architects faced involved spatial organization. Both the committee and library staff wanted to keep the locations of the various book collections where they were familiar, although the program called for greatly increased space for each department. New visitors found both the entry and collections difficult to locate, and school-age readers were relegated to the second floor, cutting off direct access and contact with the natural surroundings. To further complicate matters, the facility was to be fully operational during the expansion; [illegible] was to go from zero to all-out ([illegible] access to other facilities' collections and other on-line services); and the [illegible] wanted the facility to double as a community center where any non-profit,

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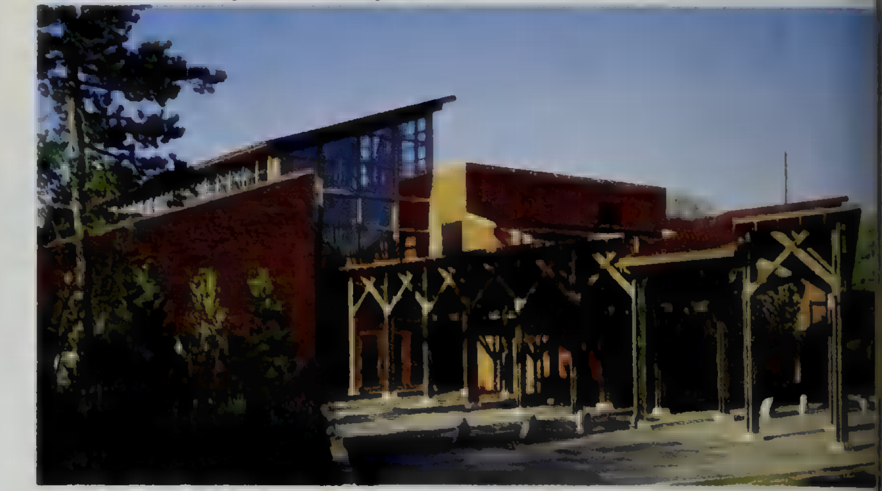
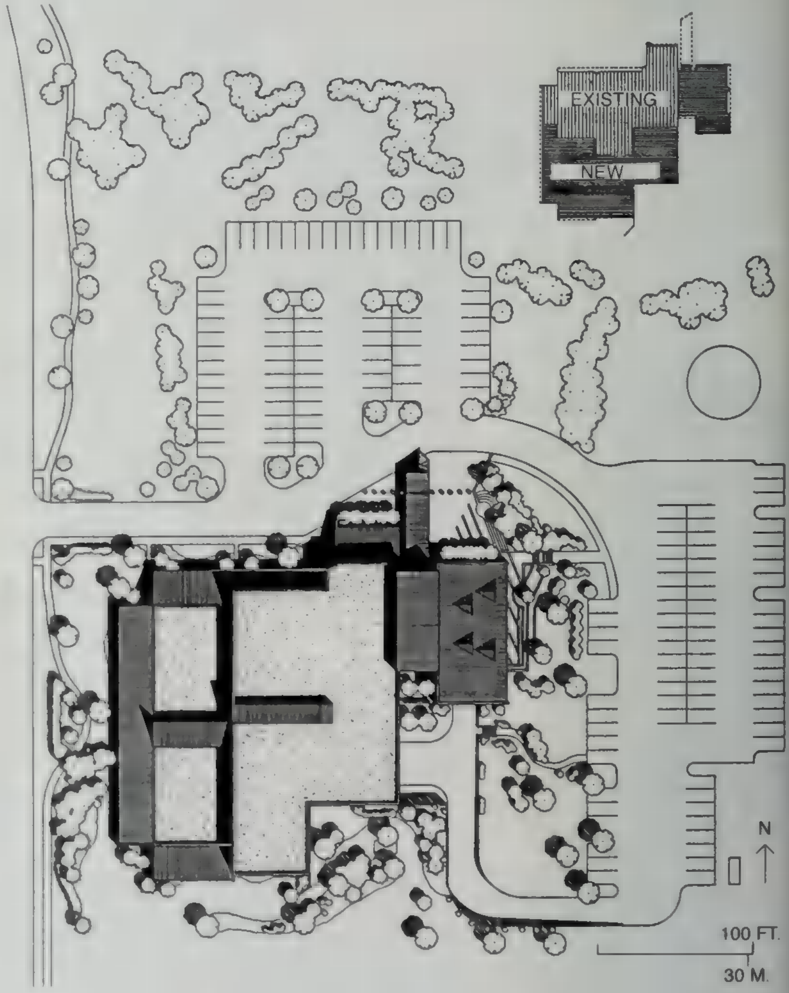
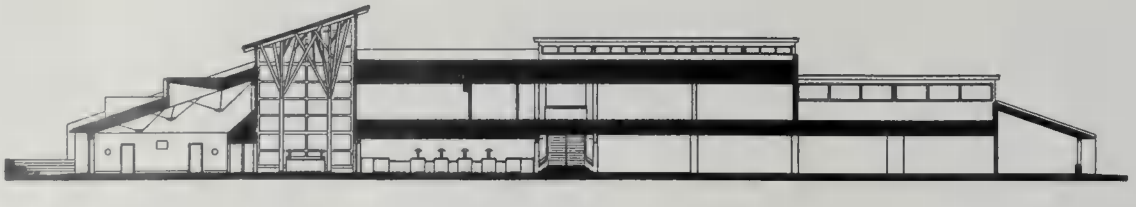
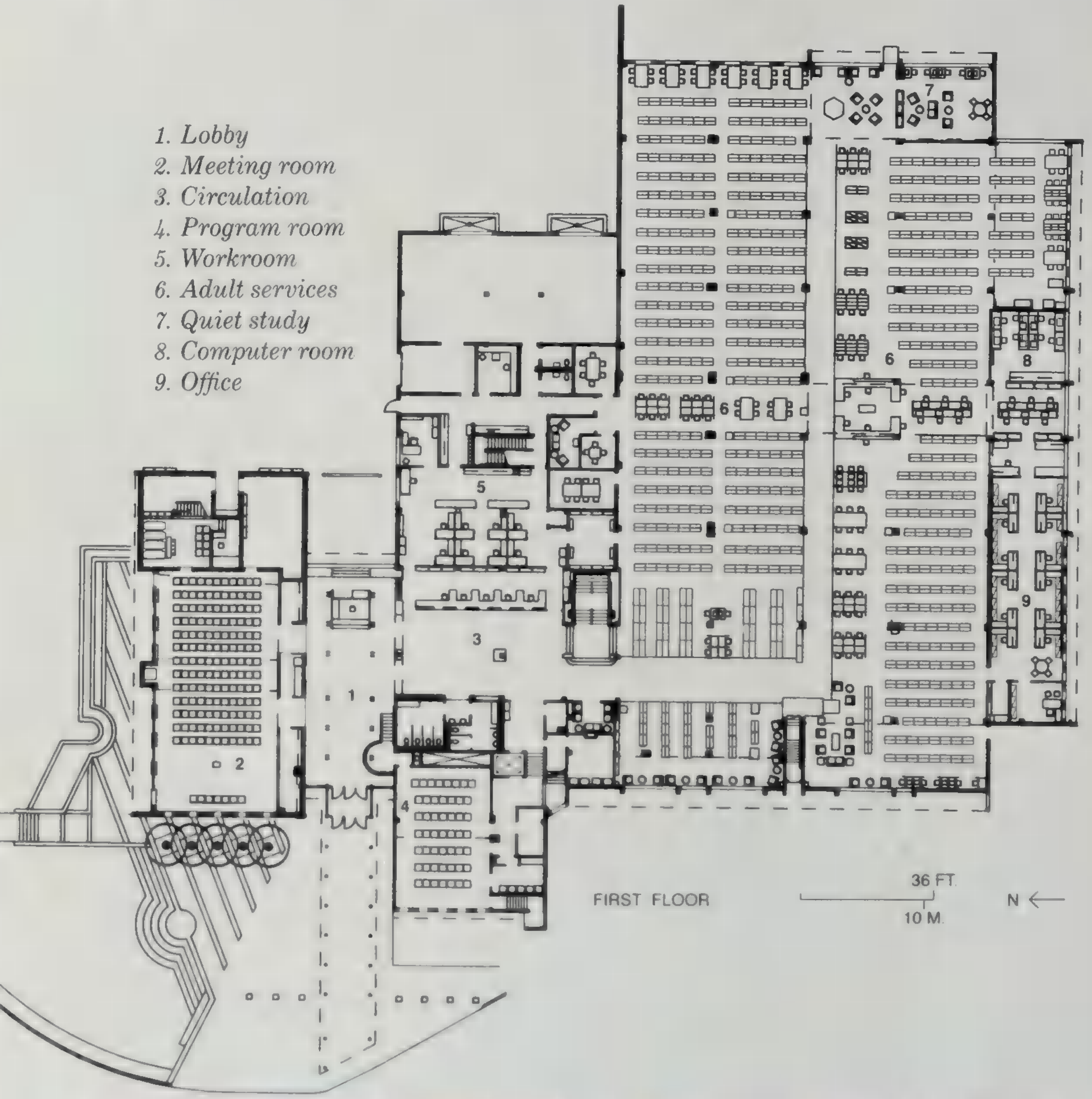


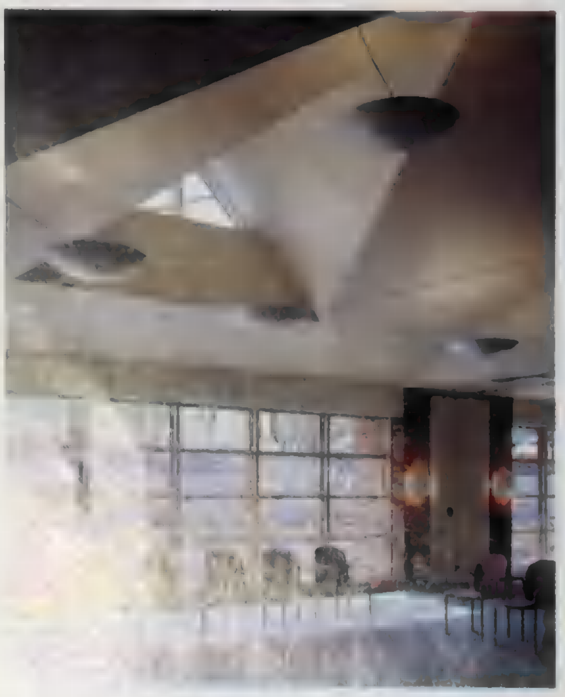


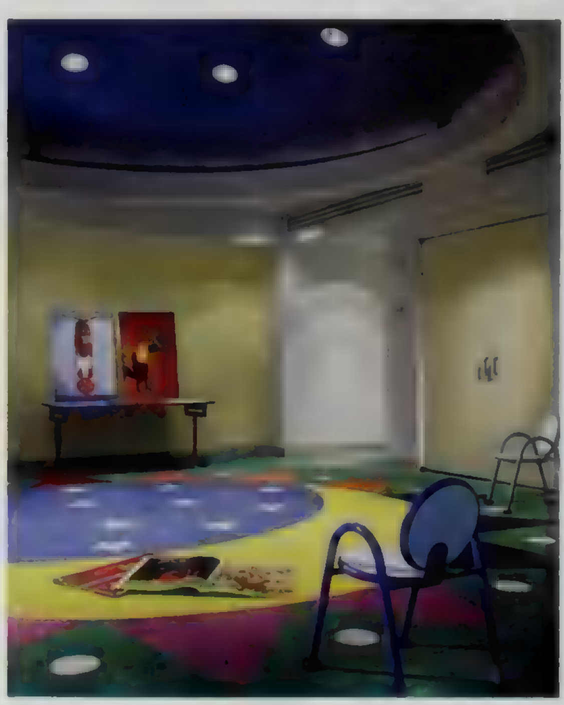
The architects extended the original building's concrete framing and brick cladding (above) except for the lobby (overleaf) and adjacent covered walk (opposite). These elements are framed in readily available stock lumber bolted together to create columns and splayed out at the top to create tree-like structural supports. Dormers in the roof of the meeting room (overleaf left) are among many devices the architects used to bring in daylight. The original sloped profile of roofs around the building's perimeter is seen to the right in the section (overleaf) and photo opposite. The architects have extended this to the addition along the street front and sides, and used it as a guide in designing the roofs of their new lobby and meeting room.





1. Lobby
2. Meeting room
3. Circulation
4. Program room
5. Workroom
6. Adult services
7. Quiet study
8. Computer room
9. Office



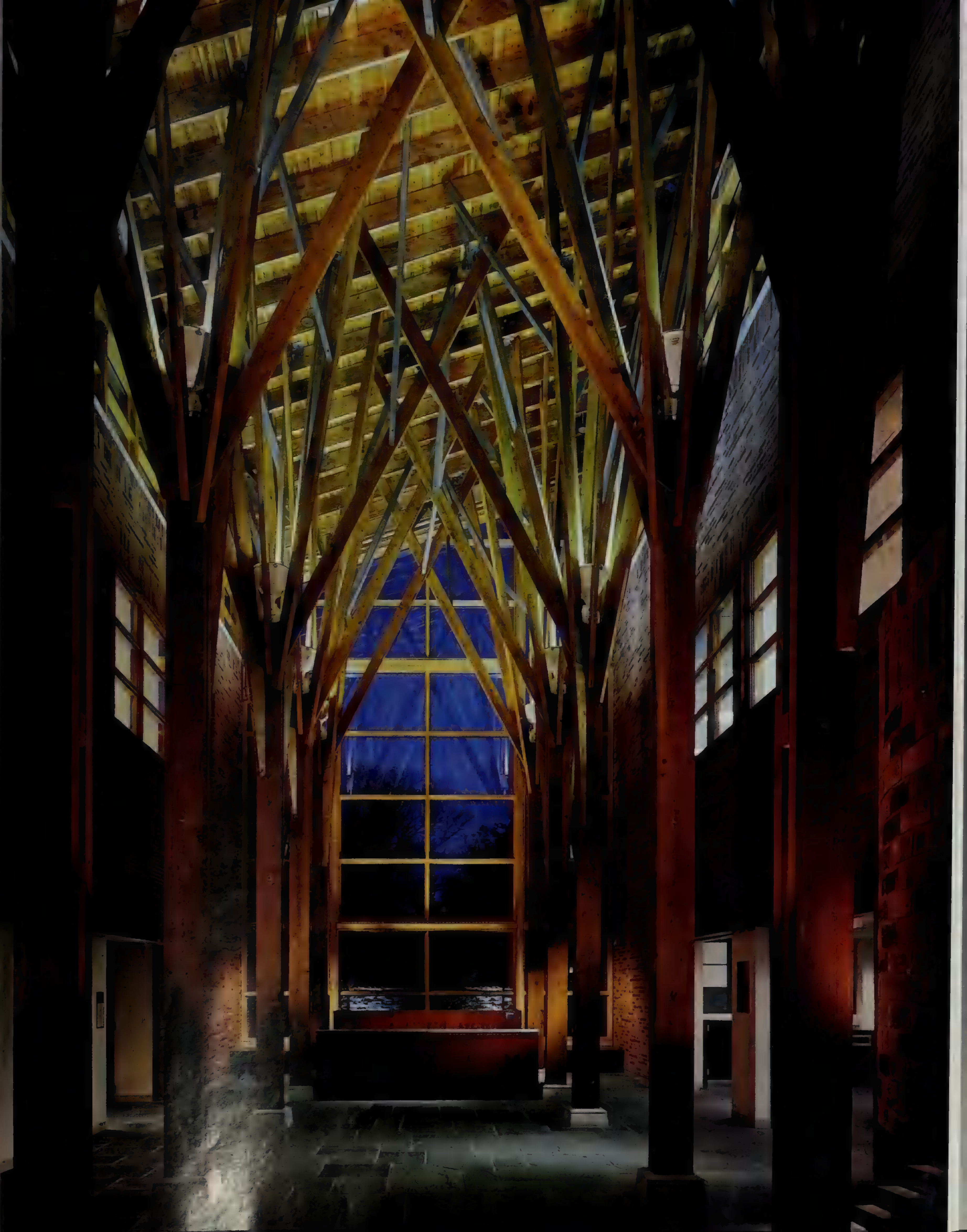


non-political group could gather, creating potential security problems. "It was like an archeological dig," says Ross Barney about integrating all these potentially conflicting components. Resolution came through long hours of meetings, she recalls.

When the architects finally established a schematic design, circulation became clear-cut. A tall new timber-framed structure defines a "street" across the original back of the building reaching north to extend a highly visible welcome and lead visitors to th main entrance and lobby. There it terminates at the reception desk (plan and large photo on next pages). Glass walls at both ends of the lobby afford views through the structure to retain a sense of the original open site. This space separates the new public-meeting room to the east from the rest of the building which can be closed off after hours.

From the lobby, a wide L-shaped corridor proceeds past the circulation desk and on to the various clearly marked collections, which retain their original familiar relationships. The school-age collections remain on the expanded second floor and are enlivened by a brightly colored design and a curvilinear corridor. Students' "visual connection" to the outside is enhanced because the extension of the second floor brings it closer to grade. Despite the enlarged floors with more area away from windows, ample exterior light enters through walls of glass at the ends of corridors on both floors and through clerestories over the circulation desk on the second floor and the adult-services desk on the main floor. *Charles K. Hoyt*

Credits
Barrington Area Library
Barrington, Illinois
Architect: *Ross Barney Jankowski, Inc.—Carol Ross Barney, James Jankowski, Susan Budinsky, Wes Hoover, project team*
Engineers: *Martin Lam, Inc. (structural); Brian Berg and Associates (mechanical); Dickerson Engineering, Inc. (electrical)*
Consultant: *Jacoma Ryan Associates (landscape architect)*
General Contractor: *G. Bluidzius*



South Boston Super Club

George Robert White Gymnasium and Teen Center
South Boston, Massachusetts
Leers Weinzapfel Associates Architects

In Boston, the Boys and Girls Club was really conceived for disadvantaged children between ages six and eighteen," says architect Andrea Leers. "It serves a population of adjacent single-parent homes, many abused children, many ethnic groups, all kids for whom this is the only alternative to the streets, so it really serves a fundamental social purpose, and is quite a wonderful thing to work on." But the facility, opened years ago, was badly in need of expansion. Day care and adult education programs had been added, and as the mission of the facility diversified, the older children began to drift away, seeking recreation elsewhere.

The club's board of directors determined that a new full-sized gymnasium, with a lounge, aerobics room, weight room, and meeting rooms were needed to bring back the teenage youth. The new addition was built over a play-yard, and given a separate identity from the existing building. It is entered through a plaza at the lower level, where the teen lounge is located, away from the child-oriented activities in the rest of the building. A small amphitheater is adjacent to the plaza. The new gymnasium is upstairs on the same level as the main floor of the existing building. The basketball court is sized for two cross-court games, and one full court. Glazing at the ends of the gym allows daylight to flood the space without interfering with play; indirect fixtures provide the same function at night. The existing gym was converted into an arts room and a playroom for younger children.

The exterior of the addition is appropriately austere, with groundface concrete block. Oversized granite insets mark a "door" that shows the location of the lower-level entrance, and a horizontal band of cast stone marks the level of the gymnasium floor. *Charles Linn*

Credits
George Robert White Gymnasium and Teen Center
South Boston, Massachusetts
Owner: *George Robert White Fund of the City of Boston*
Architect: *Leers Weinzapfel Associates Architects—Andrea Leers, principal-in-charge; Josiah Stevenson, project architect and manager; Teresa Griffin, Brad Johnson, Renee Meirzejewski, project team*
Consultants: *Lim Consultants (structural); Fales Letendre & Ziobro (mechanical/electrical/plumbing); Mason + Frey (landscape)*
Contractor: *Fairview Construction*

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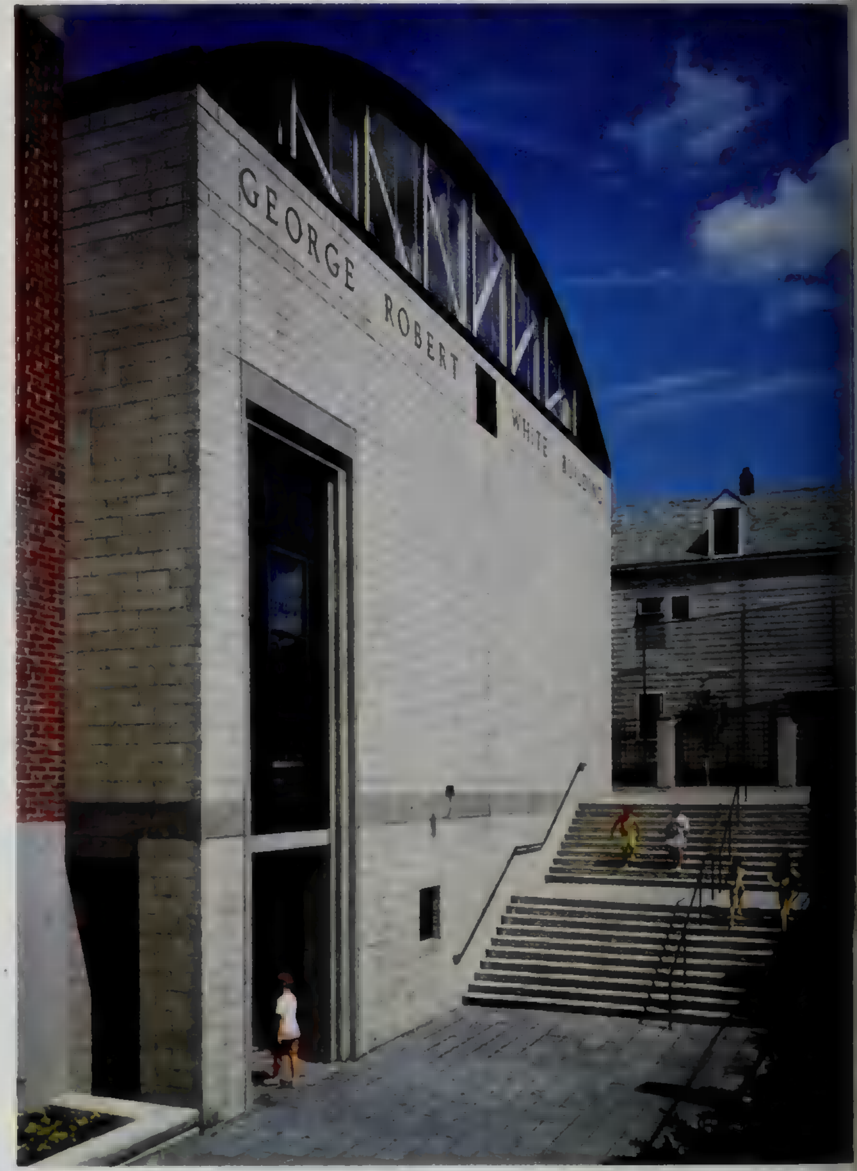
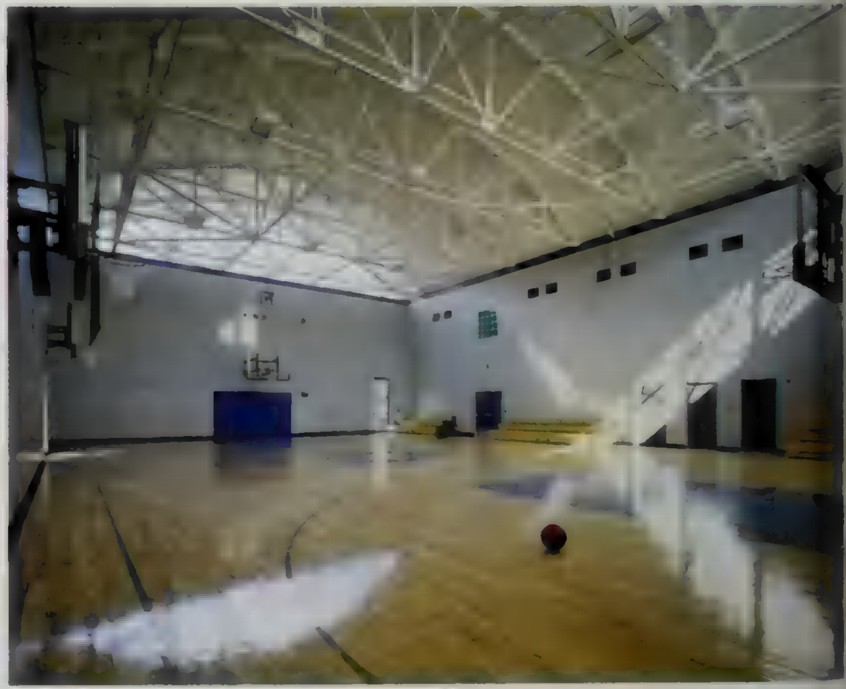
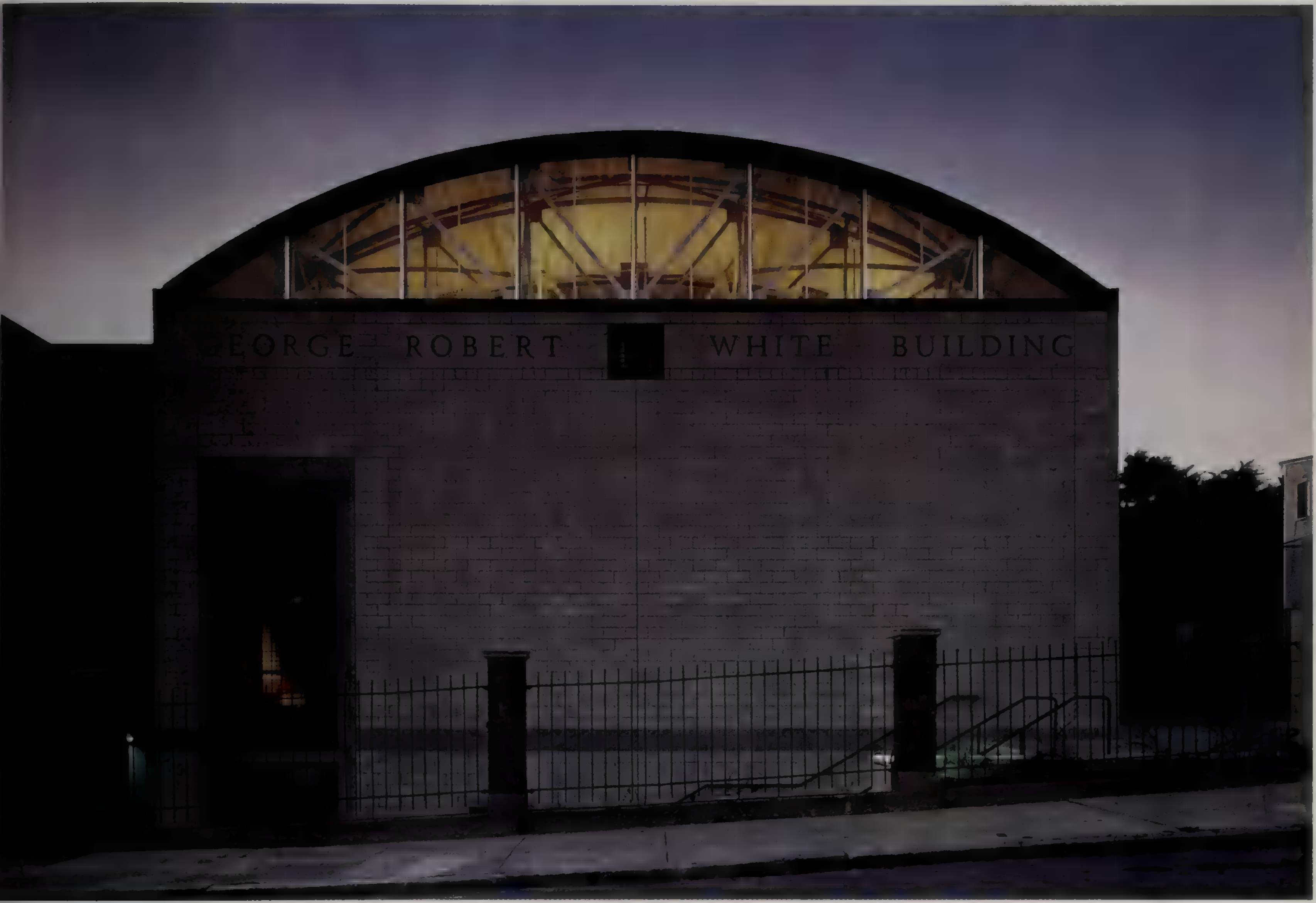
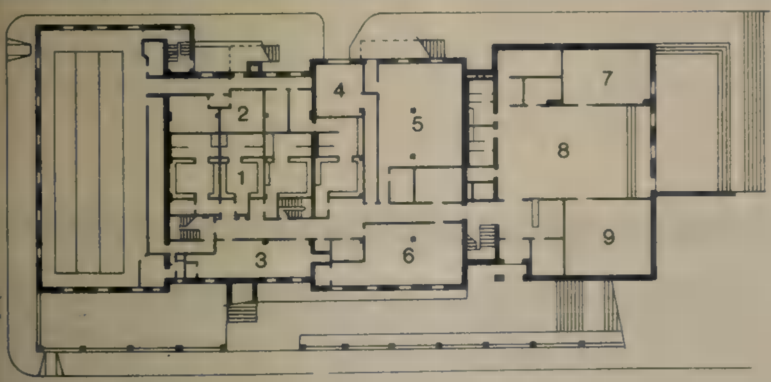


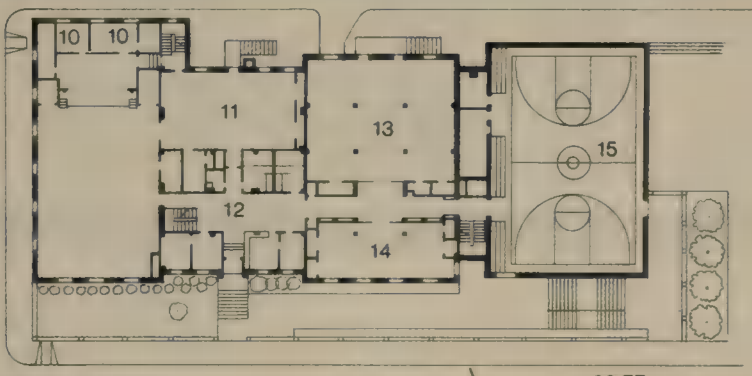


Classical roman lettering marks the facade of the George Robert White Gymnasium and Teen Center in South Boston (photo above and opposite), giving the facility a dignified [illegible] Glazing is placed high above the end-walls of the basketball court (left) to keep bright light out of the players' eyes, yet allow daylight to flood the space.

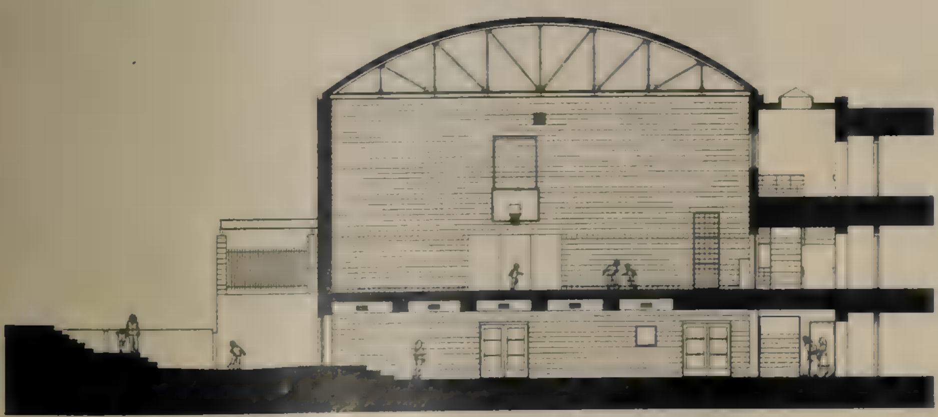




GROUND FLOOR



FIRST FLOOR



1. *Lockers*
2. *Showers*
3. *Infant/toddler*
4. *Trash collection*
5. *Montessori*
6. *Nursery school*
7. *Weight room*
8. *Teen lounge*
9. *Aerobics*
10. *Office*
11. *Daycare*
12. *Lobby*
13. *Games*
14. *Club room*
15. *Gymnasium*

Suisun City: New Life for a Lost Community

by Diana Ketcham

Five years ago, Suisun City was a decaying Northern California working-class community with a population of 25,000 and an uncertain future. In the 19th century it had been a thriving shipping center for San Francisco Bay, but the town had long ago lost its port to an oil refinery. Retail business declined when train service stopped and the new interstate highway passed it by in 1983.

Today, Suisun City is on its way to being a showcase for what the New Urbanism touts as "traditional" small-town features. Among a half-dozen redevelopment projects completed since 1990 are a revitalized Main Street lined with commercial buildings in a variety of architectural styles, a town plaza, waterfront walks, a new marina, and a new neighborhood of affordable and market-rate single-family homes, with front porches and backyards lined with picket fences.

What is most impressive is that these fashionable features combine to create a real sense of place. Standing on Main Street, one does not have the feeling of being in a community that is artificial. Suisun City has retained its history in an authentic sense; it does not feel like a resort. This is partly the result of a harmony of scale. The old and new parts of town are also connected visually, by dazzling views across the estuary that constitutes the town's central open space, ringed by paths and planting. The town occupies two square miles, and most of it is within walking distance of a turn-of-the-century train station where restored service now provides an hour's commute to San Francisco, and 20 minutes to the state capital, Sacramento. There are no malls, auto-sales plazas, no cineplexes, no chain stores, and no mammoth discount retailers.

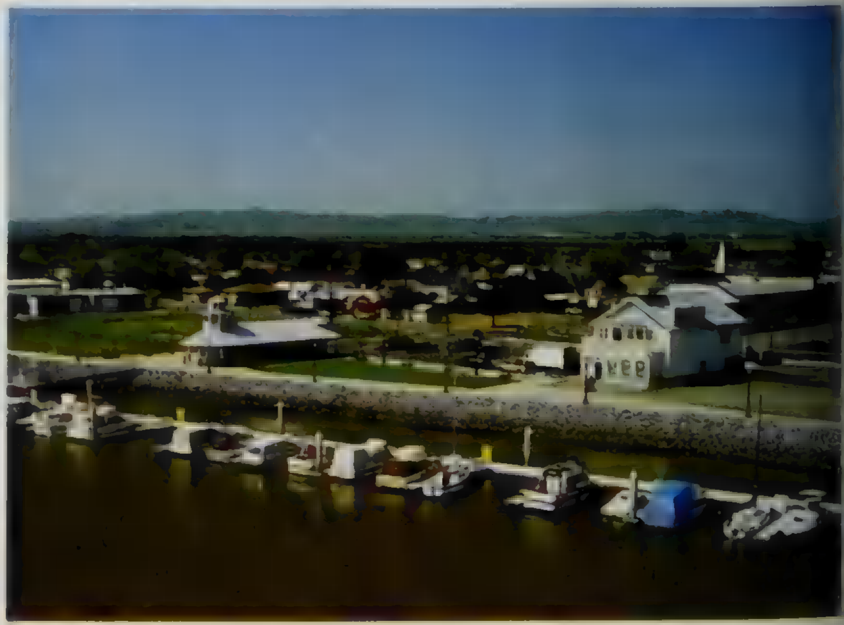
Diana Ketcham is the former book and architecture critic of the Oakland Tribune, a former editor and freelance writer, and the author of numerous articles on architecture and planning.

Suisun City is an unusual case where traditional urban features created by new development have been integrated into an existing small town. One of the goals of the master plan, by San Francisco-based ROMA Design Group, was to accommodate local businesses by making the commercial spaces small enough for them to afford. One of the most visible local merchants, Babs Curless, will move into the first finished commercial building on the new Marina. The business she is bringing to the new location is Babs Delta Diner, a Suisun City tradition, where coffee mugs of 200 regular customers hang on the wall. Babs will live in an apartment over the restaurant.

When the Suisun City Redevelopment Agency was formed in the late 1980s, the town was suffering from a shrinking tax base, environmental pollution, and a rising crime rate. The town's peripheral growth (and tax base) had been limited by the barrier of the interstate on one side and Travis Air Force Base and the delta marshland on the other. The town center had been taken over by an oil refinery that contaminated the waterfront and spawned an industrial wasteland along its banks.

"We had no choice but to build on our only two advantages: the water and history," says redevelopment director Camran Nojoomi. Suisun City—the name means "west wind" in the language of the Patwin Indians—was founded in 1850, the year after the Gold Rush, to connect the mining towns of the Sierra with San Francisco by means of water traffic on the Sacramento River. A half-dozen grand houses and churches date from that initial burst of prosperity. In the second half of the 19th century, Suisun's port was able to compete with the railway in bringing Solano County agricultural produce to market. These decades of building left behind a remarkably intact architectural fabric. Many buildings were in excellent condition, representing every period style in California architecture.

The silted-over Suisun Channel (2) was dredged in 1993. A new 150-berth marina is in operation adjacent to the Town Plaza, built on the site of the former warehouse district on the west side of the Channel. A promenade, Harbormasters Building, and restaurant (1) overlook the new marina.



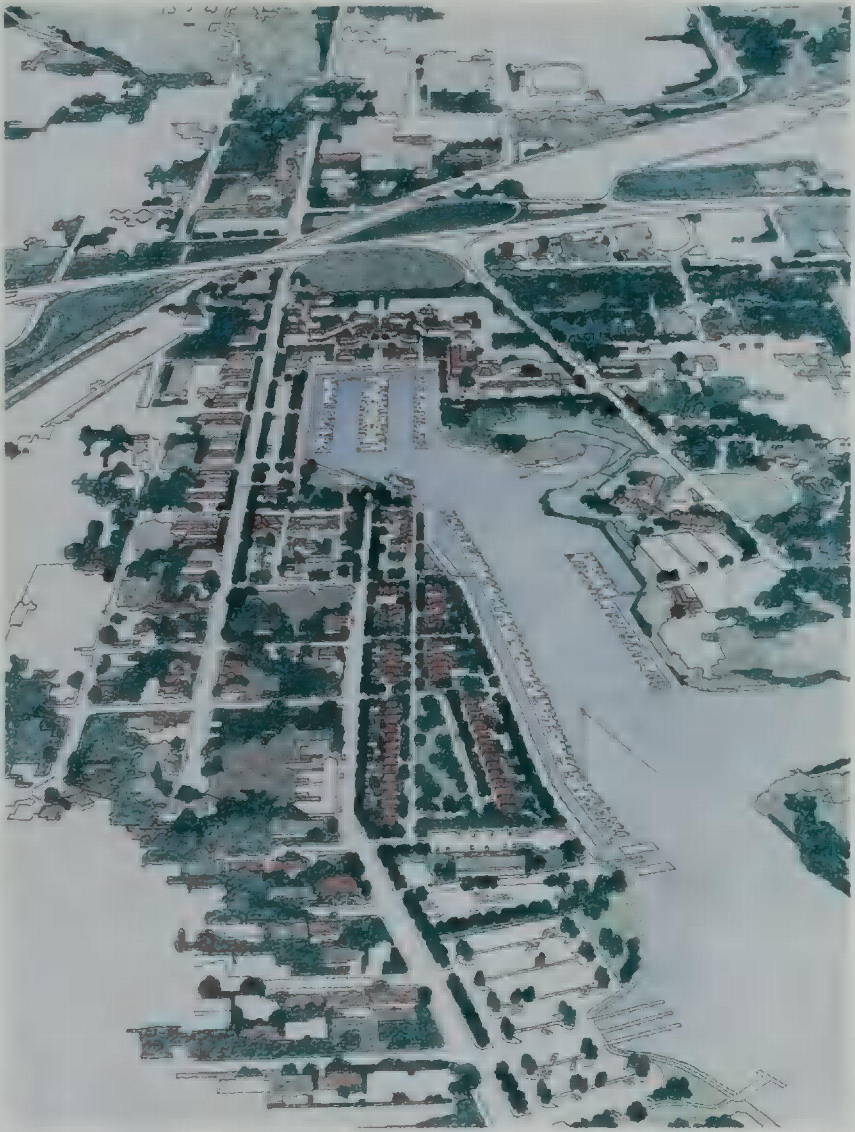
1

uisun City had a dwindling business and
pulation base, and was cut off from its last
source, the water. But it has come back.

ne 1940s, the head of the estuary was transformed into an
efining station. The old center of town became vulnerable to con-
ination and, eventually, industrial downsizing at the refinery. By
0, the waterfront was a wasteland of abandoned or underused
ehouses, and Main Street was full of boarded-up storefronts. The
dential neighborhood closest to the refinery had become a slum.
ne was so prevalent in these blocks of fourplexes the city once
sidered erecting a wall to separate these streets from downtown.

alternative was redevelopment. The Suisun City Council
loyed some unusual means to effect quick redevelopment in a
ouraging financial climate. In 1991, it put the entire city into rede-
pment, an area of two square miles. The goal, according to mayor
Sperling, "was to capture tax increment financing from projects
rring in all parts of town." The city sold $58 million in municipal
ds to pay for most of the up-front costs, such as land purchase and
olition.

Suisun City Redevelopment Agency has acted as its own master-
eloper, hiring ROMA for the master planning, design guidelines,
selected design projects, and using local developers and builders
ndividual projects. The Redevelopment Agency has its own
get, independent of the city budget, and reports directly to the
Council. It received state funds to rehabilitate the marina and
d a wetlands area with the dredged materials. Additional state
ls became available for the train station after the town won a com-
tion to open the county station on Amtrak's line between San
ncisco and the capital at Sacramento.

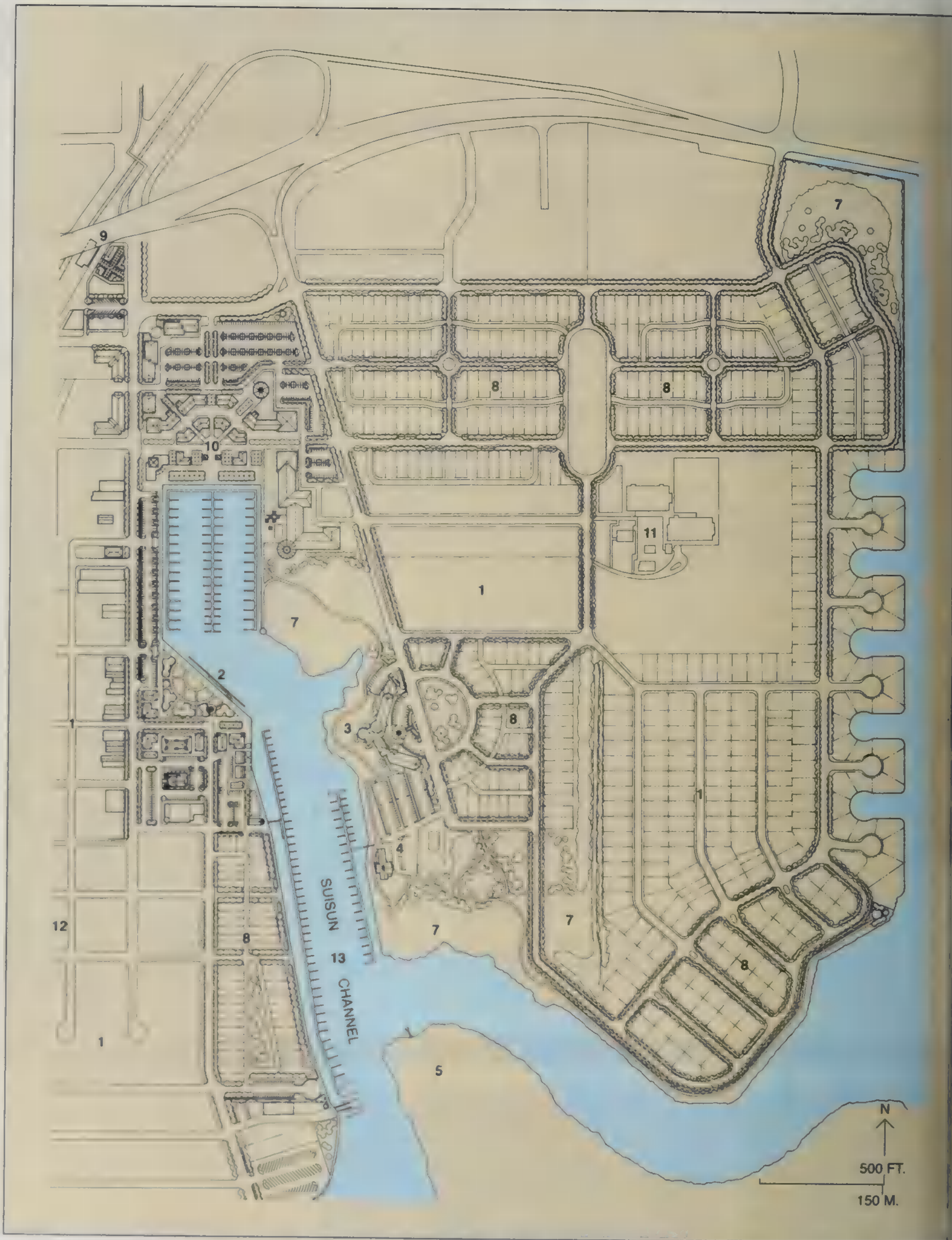


© Aerial Images

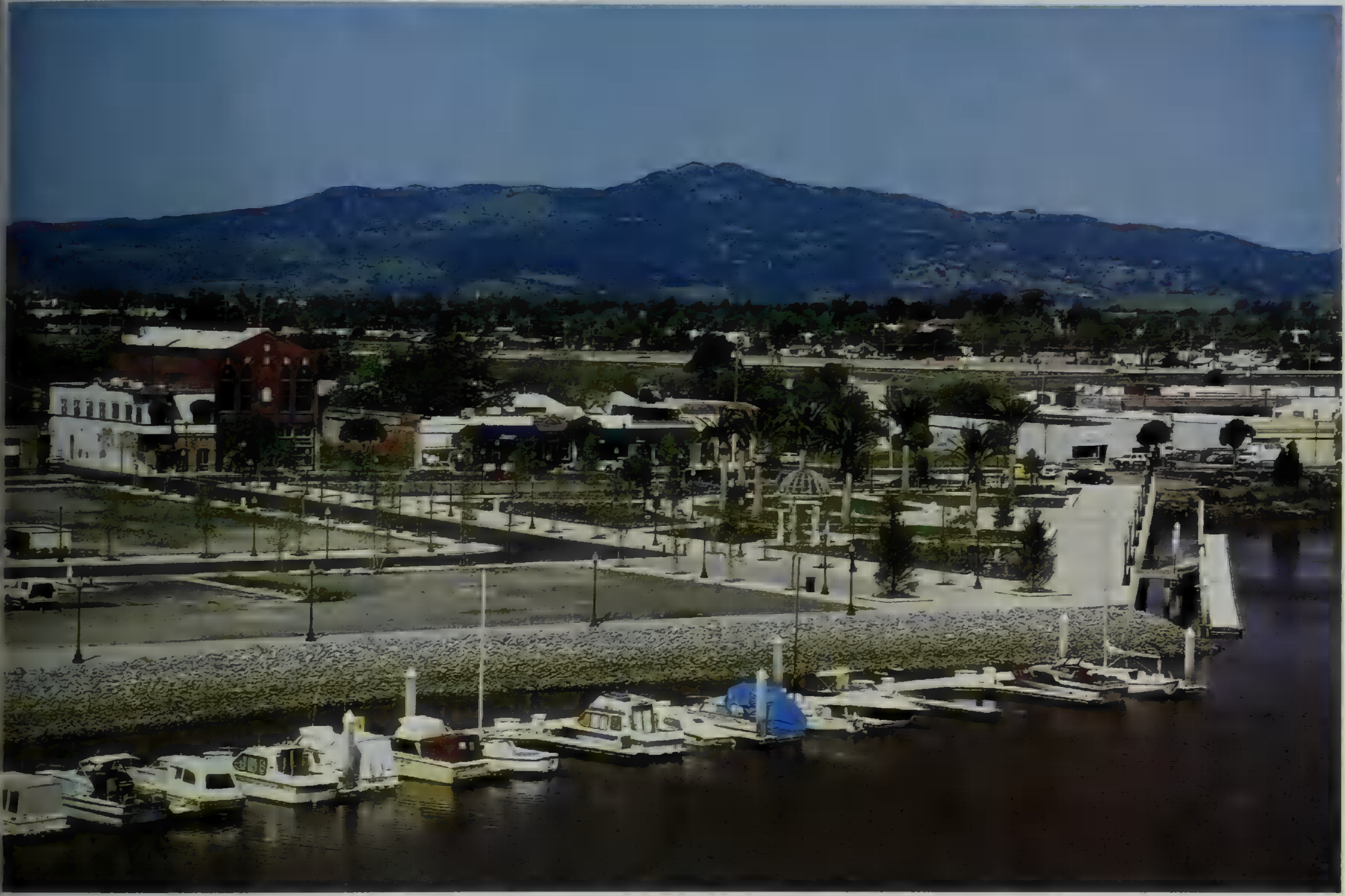
The 225-acre town of Suisun City sits on the edge of the Suisun Marsh on the Sacramento River Delta. At the center of town is Suisun Channel, which extends along the south side of the town to Whispering Bay. Clearing the old Sheldon Oil facilities and the warehouse district has given the downtown access to the water (photo 3). The pedestrian promenade will be continued on all three sides of the channel, and will allow townspeople to walk along the water to the other side for the first time in 50 years.

On the west side of the channel, the renovated Main Street, new Town Plaza (photo 4), and Harbormasters Building (photo 5) look across the water to the cupola of the Civic Center.

A second marina and hotel are planned for the head of the Channel, where the oil refinery facilities are still being dismantled. The residential blocks adjacent to the refinery to the east were cleared and replaced with Victorian Harbor, a neo-traditional neighborhood of single-family houses. Additional housing to the south is planned, behind the Civic Center and playing fields along the edge of Whispering Bay.



1. *Existing neighborhoods*
2. *Town Plaza*
3. *Civic Center*
4. *Yacht Club*
5. *Pierce Island*
6. *Whispering Bay*
7. *Wetlands*
8. *New residential neighborhoods*
9. *Intermodal station*
10. *Old town*
11. *Crescent Grammar School*
12. *Crystal Elementary School*
13. *Suisun Channel*



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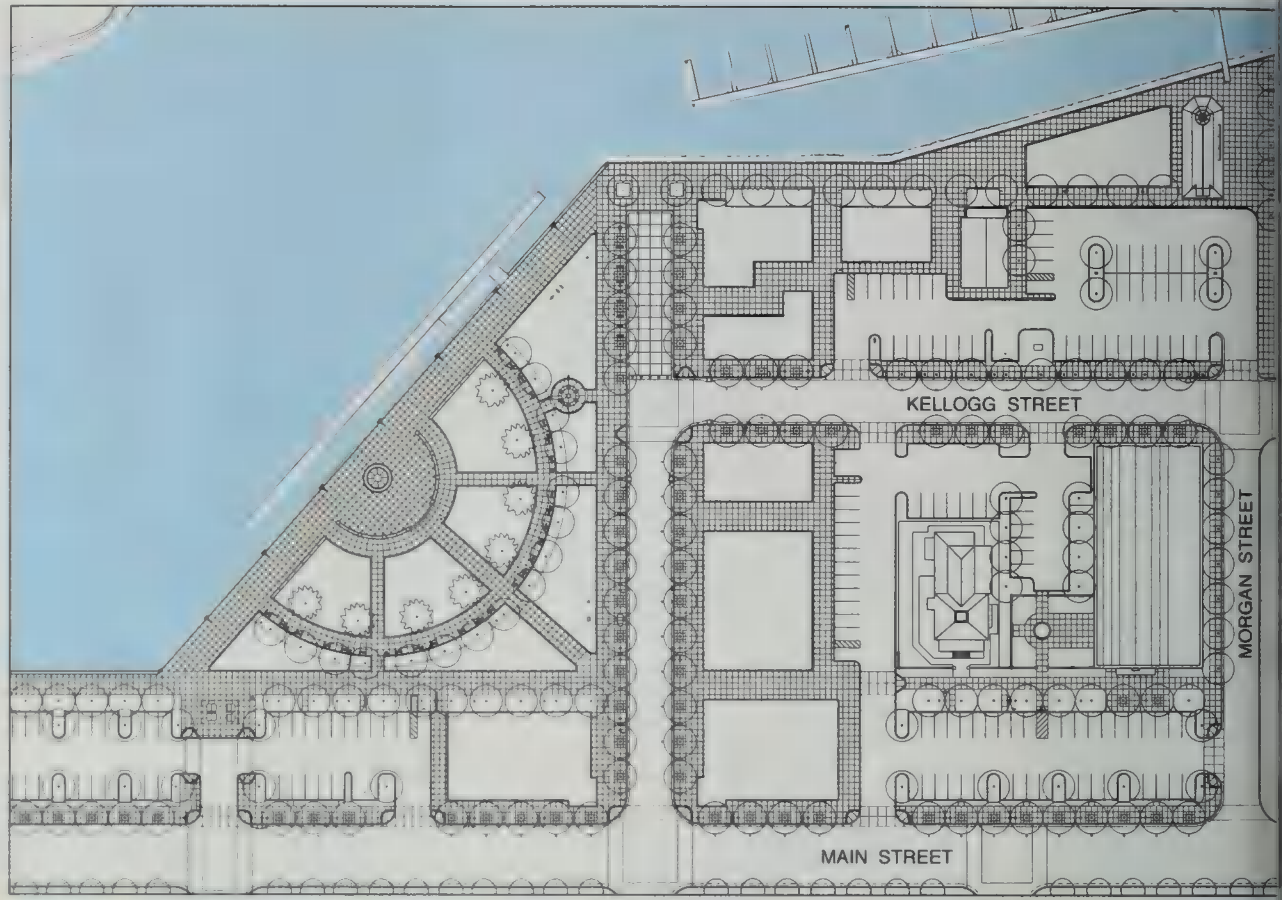
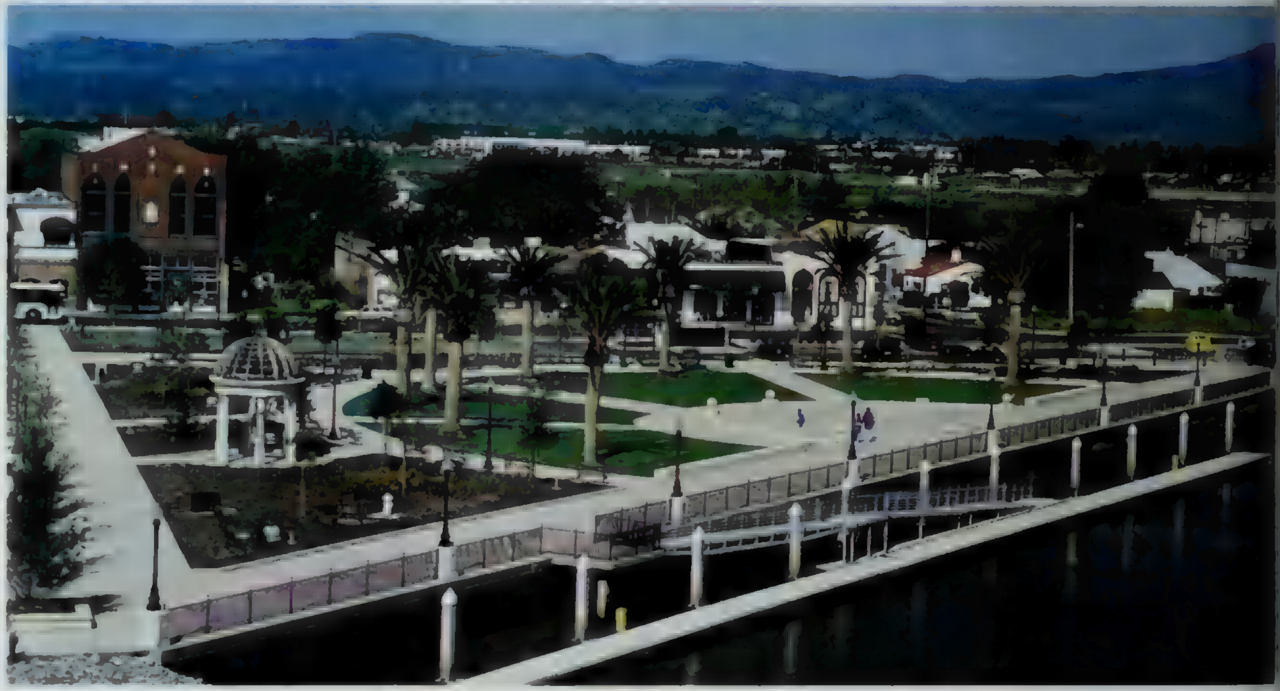
The northern half of Suisun City's Main Street now faces the newly dredged Channel and the ROMA-designed Town Plaza (site plan right and photos 6,9). Historic commercial buildings such as this restored 1888 Gothic former Masonic Lodge (8) look across Main Street to a grassy plaza with palms and Victorian street lights, bordered by the promenade.

"My daughter was married there last weekend," says merchant Ron Nix, looking out at the Plaza from his doorway at Leathermasters, his boot and western-gear shop on Main Street. "There was some resistance to displacing the old warehouses," says Nix, who has been in business 25 years. "But we all knew those buildings weren't going to get any prettier."

To the south of the Plaza is a commercial block with development pads for nine small-scale buildings with views of the water. They surround parking, a restored Victorian mansion known as the Lawlor Building (7), now occupied by professional offices, and a renovated market that has been leased to the Solano Community College drama department to operate as a community theater.

In 1993, the first phase of the town's new residential neighborhood, Victorian Harbor, was completed at the north end of the Channel (10, 11). Its 94 single-family homes replace 470 housing units, mostly 30-year-old fourplexes, which the city purchased and demolished at a cost of $11 million.

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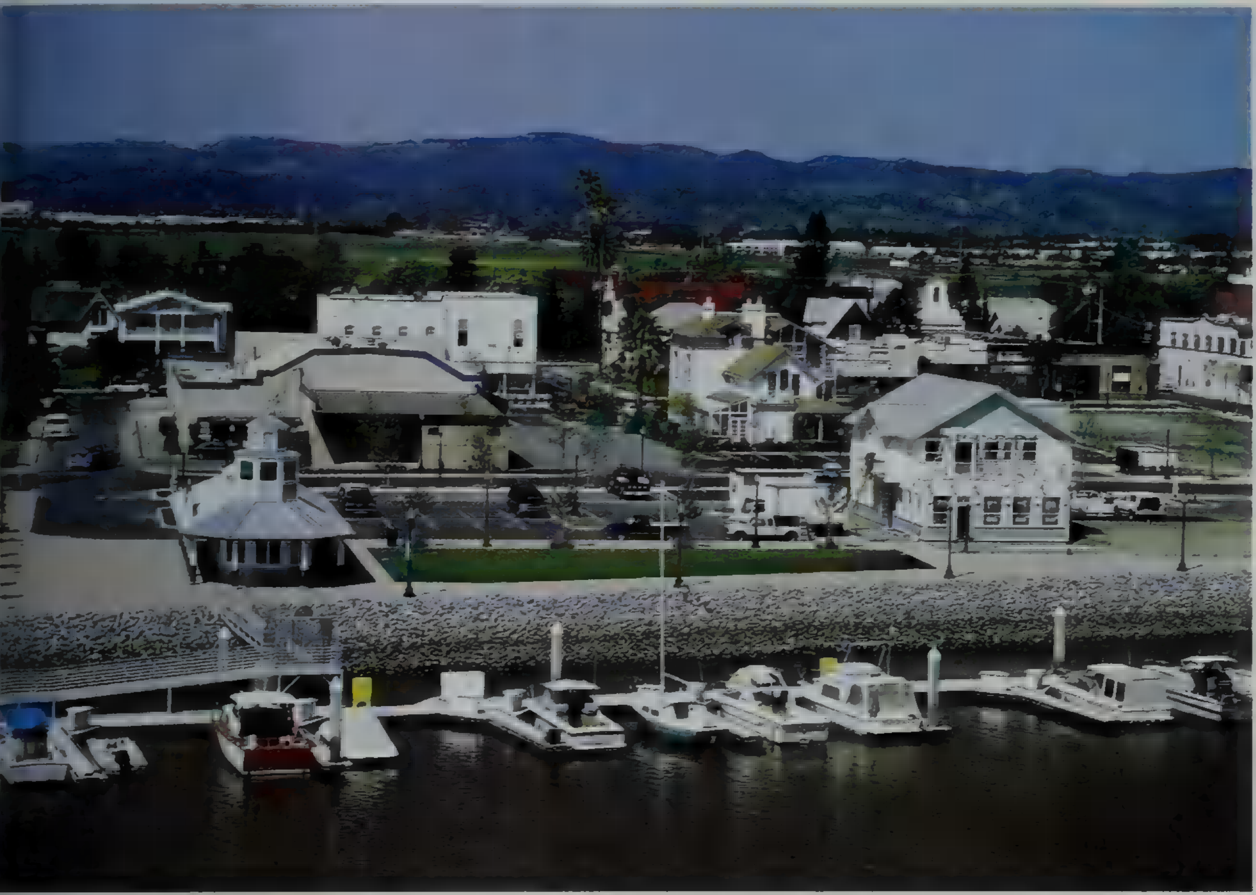
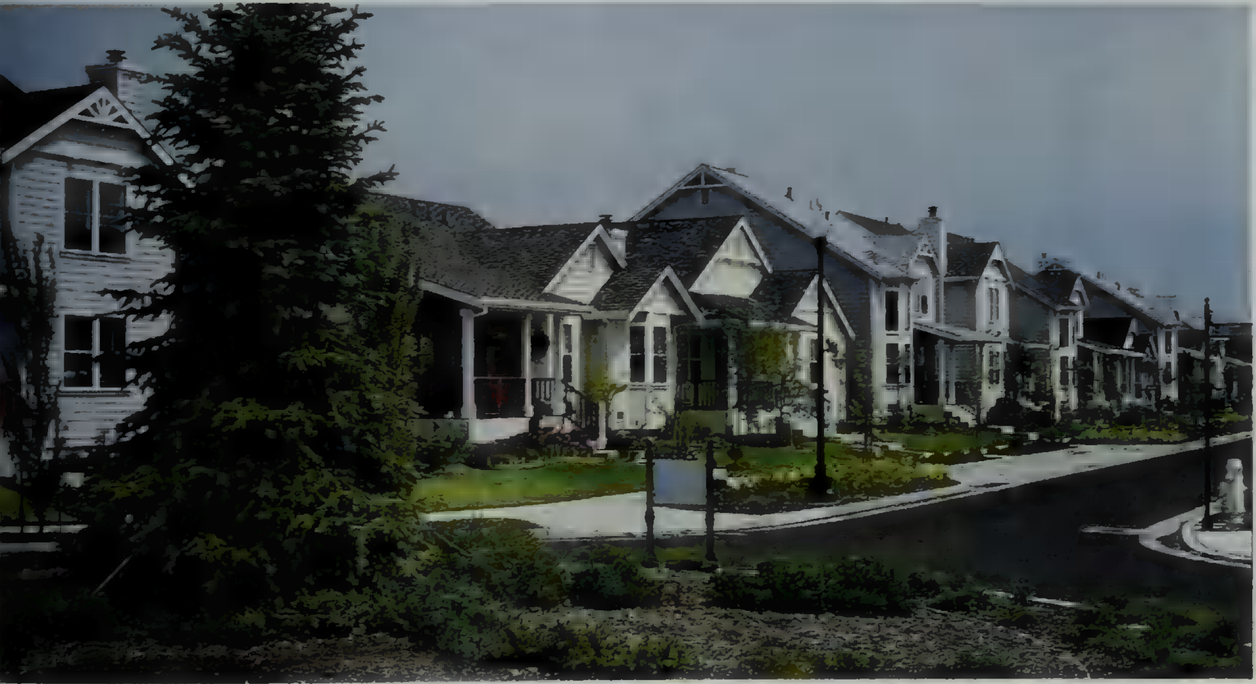
7

8



The neo-traditional neighborhood was built by the O'Brien Group, following ROMA's design guidelines and site plan. It attempts to echo the fine-grained street grid, scale, and stylistic vocabulary of the Old Town residential quarter behind Main Street. Priced between $130,000 and $180,000, the new one- and two-story houses have pitched roofs, wood siding, and front porches.

These features are borrowed from the modest Victorians and bungalows that predominate in Old Town (12), where the oldest houses go back to the 1850s. The site plan repeats Old Town's pattern of narrow streets connected by alleys. Parking is on the alleys or in backyard garages rather than on the streets.



12

Credits
Suisun City Redevelopment
Suisun City, California
Client: *Suisun City Redevelopment Agency—Camran Nojoomi, director*
Masterplanners, Architects, Urban Designers, and Landscape Architects: *ROMA Design Group—Boris Dramov, design principal-in-charge; Jim Adams, associate principal, urban design; Bonnie Fisher, associate principal, landscape architecture; Burton Miller, associate principal, architecture; Rick Barrett, Henry Chaikin, Sean Chiao, Jim Leritz, Frederika Moller, Tom Sargent, Jean Schaffeld, Bruce Teel, project team*
Civil and Coastal Engineers: *Maffatt & Nichol—Rick Dornhelm, principal; Emy Carpenter, engineer*
Housing Developer: *O'Brien Group*

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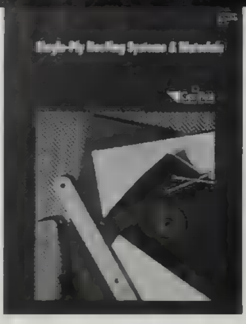

401. Single-ply roofing systems
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402. Acoustical roof decking
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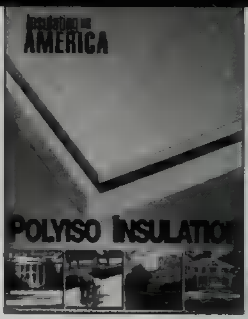

403. Polyiso insulation guide
Data sheets compare the cost efficier cies of different insulation products, based on analysis of in-use simulations in five climate zones of the U.S. Case studies highlight specific polyisocyanurate products installed in airport terminals, warehouse structures, hospitals, and factories. 202/624-2709. Polyisocyanurate Insulatio Mfrs. Assn., Washington, D.C.

404. Commercial-style ranges
A brochure illustrates stainless-steel, professional-capacity cooking equipment for home use, including gas ranges from 30- to 60-in. wide, built-in gas and electric double ovens, gas cooktops, and rangehoods and downdraft ventilation systems, listing features and dimensions for all models. 601/455-1200. Viking Range Corp., Greenwood, Miss.

405. Building-enclosure systems
A 36-page color catalog works as an architectural guide to metal cladding and roofing, with span tables, insulation values, section details, profiles, and finish options for all Smith Steelite products. Also includes explosion vents, sound attenuation panels, firewalls, and aluminum-composite-material cladding. 800/759-7474. Smith Steelite, Pittsburgh.

406. Window treatments
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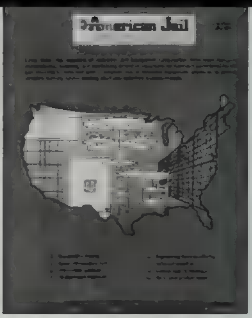

407. Detention equipment
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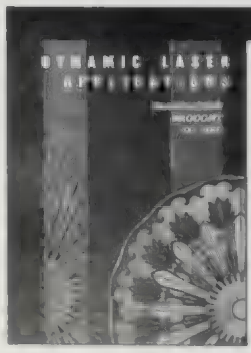

408. Wood-inlay flooring
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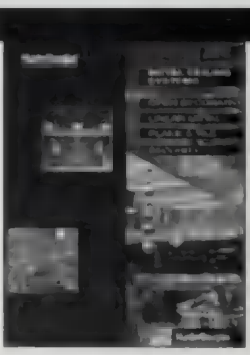
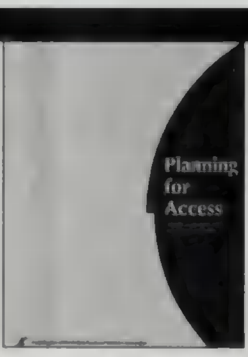


409. Metal ceilings
Brochure provides an overview of all HunterDouglas metal-ceiling systems, such as cell and cell frame, screen and baffle systems, curved linear treatments, and limited-access tile and plank ceilings. Charts match product type with typical applications, from airports to swimming pools. 800/366-4327. HunterDouglas Architectural Products, Duluth, Ga.



410. Accessible home design
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411. Fireplace design guide
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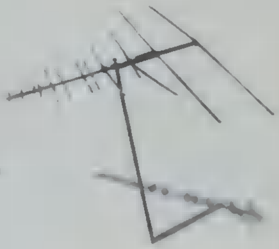

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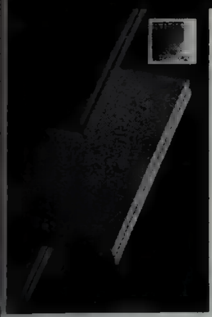

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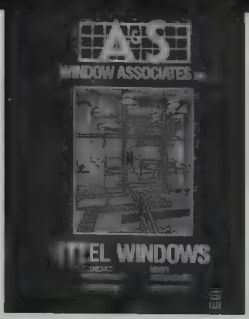

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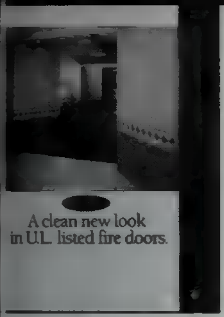

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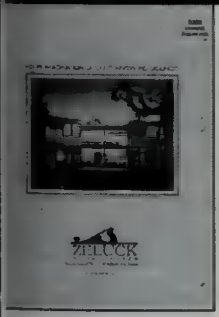

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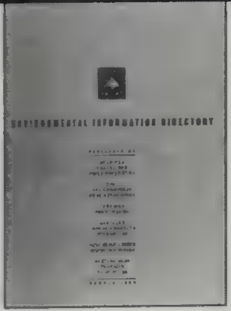

417. Sustained-yield timber
Produced by a consortium of industry groups, an *Environmental Information Directory* lists over 100 publications and materials on forestry and wood production, with sections covering timber-based products, resources, certification, and educational data; includes prices and order form. Wood Works, Portland, Ore. ■

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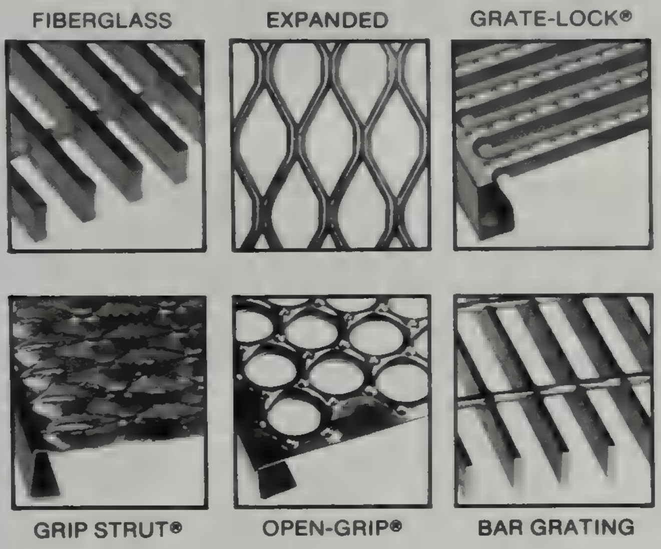

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se of its powers; the casino design concepts ere reviewed at 31 public meetings by rious agencies including the City Planning ommission and its Architectural Review ommittee, the Historic District Landmarks ommission (in an advisory capacity, since e Rivergate building does not occur in a storic district); the Rivergate Committee of e City Council and the City Council, and e Louisiana Economic, Development & aming Commission. Perhaps not everyone satisfied with the outcome, but it was not r lack of access to the system.

ur design concept was essentially site-iven, with the casino positioned to present s principal entrance elements to the four rners of the site. There, large public plazas gment pedestrian and vehicular approach-s and extend the public promenade ansversely through the building to inter-nnect with surrounding urban destinations. is also important to note that the height d mass of the casino exceed those of the ivergate; therefore it is inaccurate to state at "the casino design is so low and retched out that...it makes a hole in the ban assemblage."

What does a casino want to be? The Las Vegas and Atlantic City models provide some suggestions. However, for New Orleans, we felt that a more sedate composition of familiar architectural forms would be appropriate; forms which relate sympathetically to the architectural heritage of the city. We felt that it should be more serious than only announcing its entertainment purpose with alien, incongruous gestures. Our design accomplishes both objectives.The advent of this new industry has already sparked the most intense development boom this city has seen in 10 years, and there is a renewed spirit of excitement and anticipation. The author accurately articulates the real source of the negative reaction to the project: the community's apprehensions toward gaming.

S. Stewart Farnet
Principal
Perez Ernst Farnet/Modus Inc.
Project Architect
Harrah's New Orleans Casino

Team Effort

Re your article ["Architects Out of the Loop," March 1995, pages 30-35], in the "old days" many developers and contractors were one and the same. As development became more complex and more projects failed, developers sought separate general contractors. The fee to a GC is an "insurance premium" for taking on a predominant portion of the construction risk. Much money is involved. In this scenario, the architect can easily become a scapegoat—especially since the function of the architect's clerk of the works is now filled by others. The GC and the subs often gang up on the architect by blaming "inadequate drawings, etc." What solutions have evolved over time? A solution I use in a course I teach is: the development team.

The developer, architect, and contractor meet regularly to create a finance package to build a project on budget and on schedule. The GC provides the pre-construction services, with a caveat that if another GC is hired, the former GC gets reimbursed. Of the four types of students I have, the only one who is visual is the architect. Having the MBA, the planner, or the engineer provide this essential element is to invite disaster. Real-estate development is a multi-discipline endeavor. The architect will always be a primary member of the team that produces winning developments.

Donald Tishman
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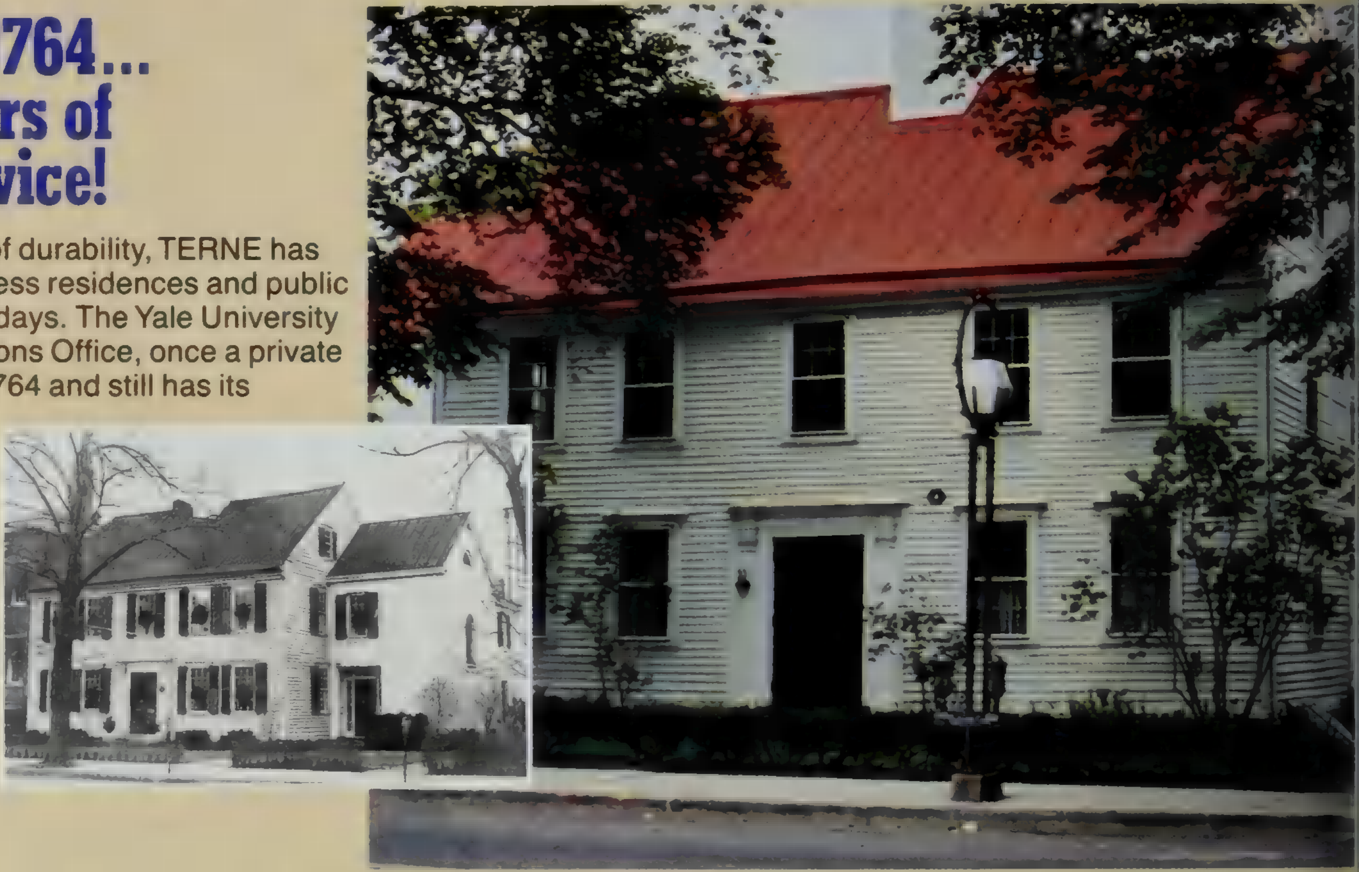

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Manufacturer Sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified.

Pages 36-39
Grand Louvre—Phase II/Inverted Pyramid
Pei Cobb Freed, Architect
Metal structure: Barbot. Skylight framing and glazing: Viry/Dutemple. Metal finish: ETM Voisin. Lighting: ERCO Lumineres Sarl; Mazda.

Pages 40-43
Hotel Kempinski Airport, Munich
Murphy/Jahn, Inc., Architect
Curtain walls: Josef Gartner & Co. Glazing: Helmut Fischer GmbH.

Pages 79-85
The Florida Aquarium
Hellmuth, Obata & Kassabaum, Inc., and Esherick, Homsey, Dodge & Davis, Joint Venture Architects.
Dome framing, windows, and entrances: Barbary Co. Spectrally-selective glass: Monsanto Co. (Solarflex). Laminator: LCC. Custom concrete: Tarmac. Single-ply roofing: Sarnafil. Metal roofing: Aeicor. Wood interior doors: Weyerhaeuser Co. Fire doors: Won-Door Corp. FRP doors: Fenestra. Railings: by M&J Materials. Acrylic windows: Mitsubishi Rayon, Ltd. Exhibit fabrications: The Larson Co. (Tucson). Exhibit flooring: Dex-O-Tex. Metal coatings: Tenemec. Elastomeric paint : M.A.B. Waterproofing: American Colloid. Metal ceiling: Alcan. Acoustic ceilings: Armstrong World Industries. Bollards and sconces: Louis Poulsen.

Pages 86-89
Casa Pacifica Children's Crisis Care Center
Bobrow-Thomas Architects
Stain on cedar siding: Sinclair. Concrete roofing: Lifetile. Casements: Torrance Steel Window Co. Entrances: Kawneer Co. Resilient flooring: Tarkett; Amtico; Flexco. Tile flooring: Dal-Tile. Reception furniture and child's seating: Thonet. Carpeting: Bentley Mills. Pendants: SPI (Renaissance). Laminates: Nevamar; Formica Corp. Paints: Benjamin Moore & Co.; Pratt & Lambert.

Pages 90-93
Lincolnshire Village Hall
Nagle, Hartray & Associates, Architect
Brick: Claycraft. Glass brick: Pittsburgh-Corning. Shingles: Western Red Cedar. Windows: Profile. Paints: Benjamin Moore & Co. Uplight sconces and pendants: Elliptipar. Mahogany entrance, paneling, and cabinetry: Snyder Millwork.

Pages 94-95
Newton Library
Patkau Architects, Inc., Architect
Structural wood: Structurlam Products Ltd. Roofing: Soprema Waterproofing. Storefronts and windows: United States Aluminum Corp. Exterior panels: Weyerhaeuser. Louvers: Alumavent. Locksets: Sargent and Co. Seating: The Knoll Group.

Pages 96-99
Sedgwick Branch Library
David W. Prendergast, Architect
Ground-face CMU: Trenwyth Industries, Inc. (Trendstone). Stainless-steel sheet-metal work: Three Brothers Industries. Concrete stain: Sonoborn. Windows and entrance: EFCO Corp. Built-up roofing: Schuller International. Plastic- and aluminum laminates: Formica Corp. Paints: Benjamin Moore & Co. Metal coating: Hammerite. Downlights: Lightolier. Fluorescents: Mark Lighting. Exterior floods: Microflector. Stacks: Danish Library Design Bureau. Seating: Passanella.

Pages 100-103
Barrington Area Library
Ross Barney Jankowski Architect
Brick: Glen-Gery Corp. Single-ply roofing: Fibertite. Wood curtain wall and entrances: Duratherm Window Corp. Windows: Pella Corp. Interior wood doors: Algoma. Upward-acting doors: Raynor. Stone flooring: Burlington Stone. Acoustic ceilings: USG Interiors. Cabinetry and architectural woodwork: Midwest Woodwork. Pendant luminaires: Visa Lighting (custom by architect). Exterior: Elliptipar. Interior fixtures: Benjamin; Daybrite.

Pages 104-105
George Robert White Gymnasium and Teen Center
Leers Weinzapfel Associates Architects, Inc.
Cast stone: Burns & Russell Co. Aluminum-framed curtain wall; casements and double-hungs: EFCO Corp. Tinted and frit glazing: Falconer Glass. Standing-seam roof: Lead-coated copper. Truss-mounted uplights: Sterner Lighting Systems. ■

Clarifications
The clients of the Spiral House [RECORD, April 1995, page 62] are Andrew and Lisa Greenberg. Rick Donsavage of Dowko Development was omitted from the list of contractors. ■

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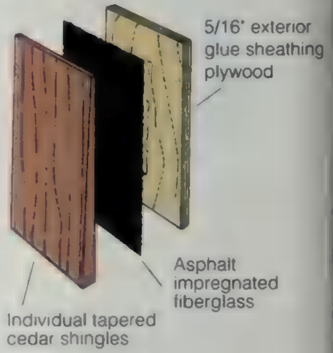
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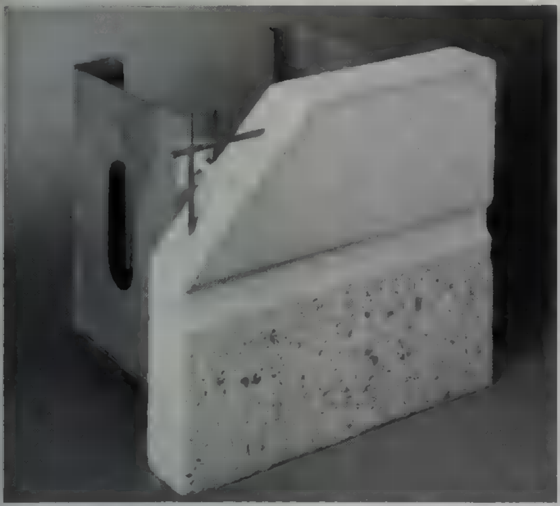

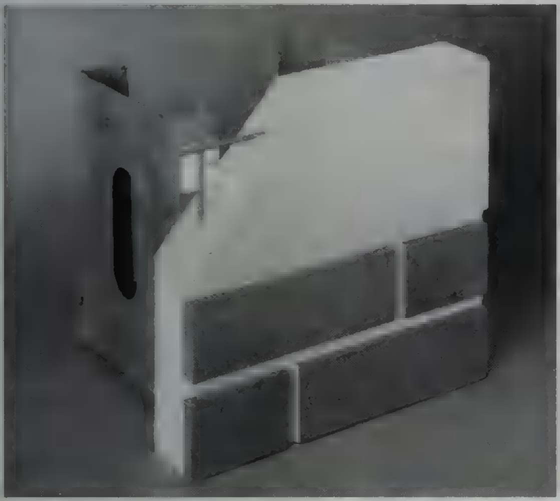

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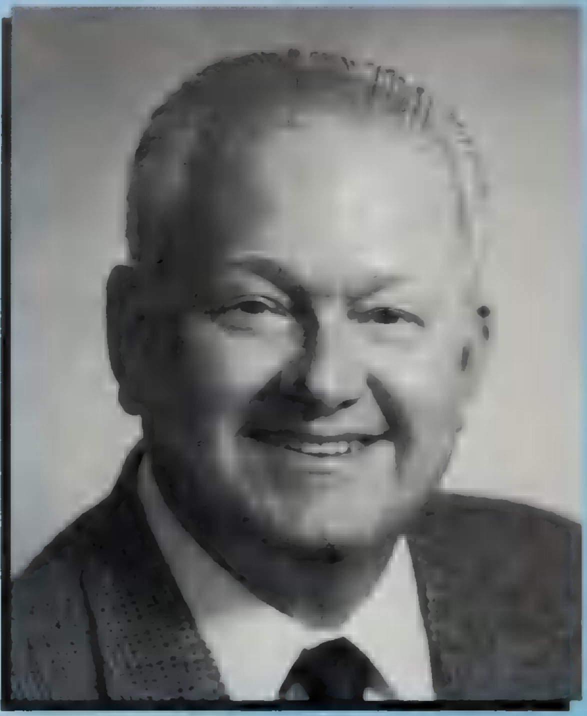

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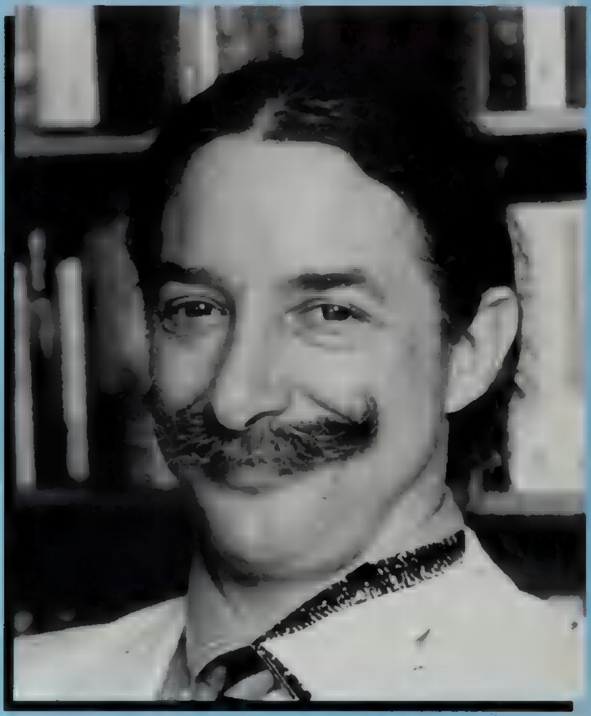

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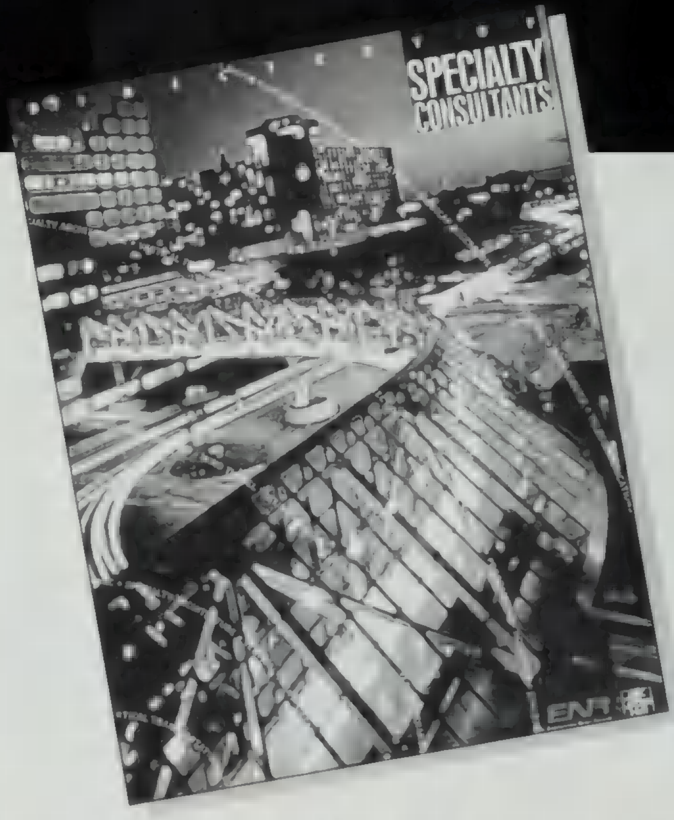

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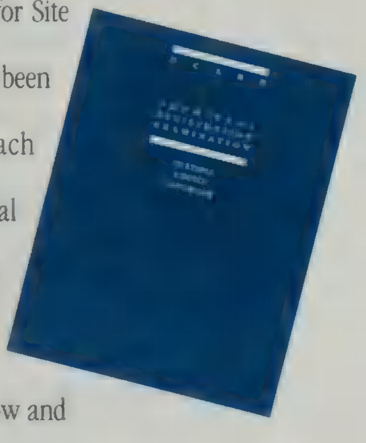

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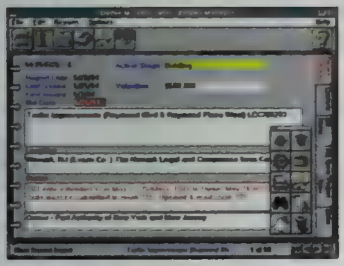

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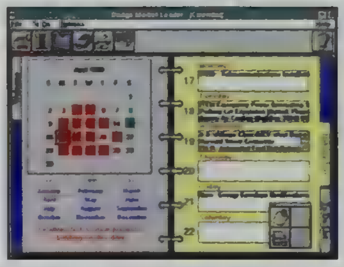

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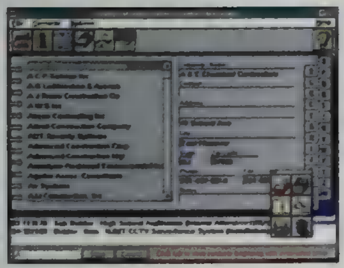

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Architectural Designer: One of leading Architectural firms in Seoul, Korea has openings for registered architects who have minimum of seven years experience in design. Work location is Seoul, Korea. Forward resume to: 1424 4th St. #700 Santa Monica, CA 90401 or Fax (310) 394-1932.

Architect. Preparation and documentation of all phases of large scale building projects specifically hospitals, medical office buildings, mixed use complexes and hotel/residential. Work with and be directly responsible to firm principal for support in the identification of, development & design and execution of projects in the overseas markets, specifically in Europe. Use and application of local zoning, building codes, construction techniques and local building materials is required. Experience with Computer Aided Design and utilization of CAD programs (Drawbase and Auto CAD) as well as Windows software is required to prepare project designs, presentations, plans, sections, elevations and details. The position requires minimum 4 years of relevant experience in the preparation of Sch. Design, Design Dev. and Con. Doc. for the above described project types in both English and Metric systems. Must possess technical fluency (read, write, speak including architectural and contractual terminology) in English plus Russian and Bulgarian or German and French. Must have proof of legal authority to work permanently in the U.S. Must have a Masters Degree in Architecture and possess licensed architect status or equivalent in the U.S., Europe or Asia. 40 hrs/wk, 8:30 a.m. -5:30 p.m., salary $31,900/year. Send 2 copies of resume to Illinois Department of Employment Security, 401 South State St. 3 South, Chicago, Illinois 60605, Attn: Leila Jackson, Ref. #V-IL 12225-V, No calls.

Architect/Senior Designer. Potential to become Director of Design for small firm with national practice in Oupatient Healthcare Facilities. Benefits. FAX resume to (719) 635-9124 or mail to: Marasco & Associates, Inc. 18 N. Sierra Madre, Colo. Spgs., CO 80903.

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Residential design firm for sale Austin, [illegible] years in business with established [illegible] extensive plan inventory. A great [illegible] opportunity in one of America's [illegible] markets. Mail inquiries to P.O. Box [illegible] 78716.

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Manufacturers' Spotlight

Fax: 212-512-2074

Hoover Treated Wood Products

New video from the U.S.'s largest producer of fire retardant treated wood shows how treated wood is produced and tested, and describes Hoover's complete line of treated wood products including **PYRO-GUARD** interior type fire retardant treated lumber and plywood, **EXTERIOR FIRE-X** exterior type fire retardant treated lumber and plywood, and **CCA KDAT** preservative treated lumber and plywood that's kiln dried after treatment.

Hoover Treated Wood Products, Inc.

Circle 51 on Inquiry card

Cabinet Hardware/ Bath Accessories

Green Street Details offers a complete line of contemporary and transitional cabinet hardware and bath accessories. Components are precision machined, hand finished, and assembled at their own manufacturing facility in Portland, Oregon insuring complete quality control and on time delivery. Custom projects, finishes, and colors are welcome. Call (800) 275-7855 for more information or a free catalogue.

Green Street Details

Circle 52 on Inquiry card

Real Gas Lights

Historically accurate real gas lights and electric replica gas lights are available from Pennsylvania Globe Gas Light/Welsbach Lighting.

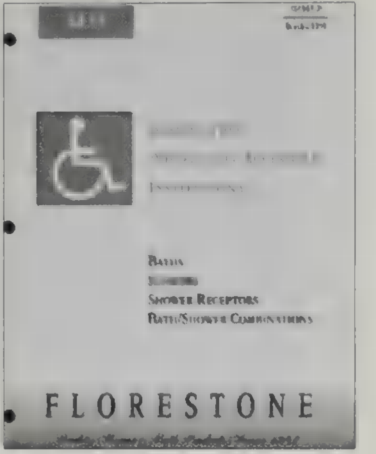
The timeless grandeur of these fixtures recalls with pride an earlier era.

For more information: Pennsylvania Globe Gas Light Company, P.O. Box 9472, New Haven, CT 06530, (203) 789-2051

Welsbach Lighting

Circle 53 on Inquiry card

Barrier-Free Products Catalog



New Florestone brochure describes ADA compliant, barrier-free, wheelchair accessible and institutional showers, shower/bath combinations, and shower receptors. Drawings and listing of Building Codes and Testing Standards, as well as a section on the codes is included. Call (800) 446-8827.

Florestone

Circle 54 on Inquiry card

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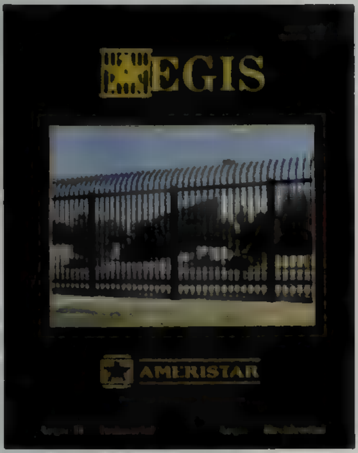

Aegis ornamental fence systems feature 'strong Forerunner™ rails, internal retaining rods, & specially designed panel brackets. Aegis II industrial ornamental fence offers the strongest security ornamental fence available in todays market. Aegis holds the distinction of having its fence systems specified by more architects & builders than any other in the market. Both industrial & residential brochures are available upon request & include data on structure, design, & options available. Panel design is a component system for easy shipping. For additional information & a free 8-page brochure, call (800) 321-8724. P.O. Box 581000, Tulsa, OK 74158-1000. Fax# (918) 835-0899

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TOTAL DOOR® SYSTEMS by OPENINGS®

The TOTAL DOOR® SYSTEM is an architect-designed integrated door assembly. It includes prefinished door panels and all hardware. Fire rated pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. OPENINGS, 40 West Howard, Pontiac, MI 48342, 1-800-852-6660.

OPENINGS.

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This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design and enhance the appearance and security of any property it surrounds, this fence system is virtually unclimbable, rugged, maintenance-free and easy to install. OMEGA FENCE SYSTEMS, Laval, Quebec. 1-800-836-6342.

Omega Fence Systems

Circle 57 on Inquiry card

REYNOBOND Project Report

Fire resistant REYNOBOND® Aluminum Composite Material is featured in a project report of the State Compensation Insurance Fund office building in Fresno, CA. Containing details and comments by the design and contracting principals, the report is available with a complete REYNOBOND® Architectural Brochure and standard color chart. Contact Reynolds Metal Co.; Construction Products Div.; P.O. Box 27003; Richmond, VA 23261. Telephone (804) 282-3629; FAX (804) 281-3602.

Reynolds Metals Co.

Circle [illegible] on Inquiry card

Manufacturers' Spotlight

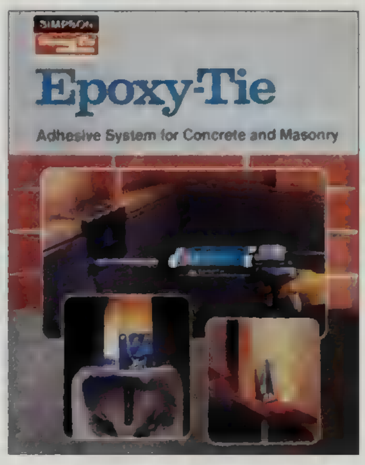
The Discrete Access & Egress Solution

Security requirements, space constraints and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The ladder's discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. Jomy Safety Ladder Co., 1728 18th St., Ste. 201, Boulder, CO 80302. Phone 800-255-2591.

Jomy Safety Ladder

Circle 59 on Inquiry card

Anchoring bolts easier with EPOXY-TIE ™



Low-cost epoxy system for retrofits in concrete or masonry provides stronger anchoring than can be achieved with mechanical anchors. Epoxy-Tie™ bonds with surrounding concrete; anchor is less prone to side-burst during close-interval installation. Higher resistance to moisture and vibration than mechanical anchors. Full information in brochure **F-ET**.

Simpson Strong-Tie® Co., Inc.

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Ultra-Lite natural granites, marbles, limestones & slates. Offering natural stones with 80% less weight. Reinforced for high impact & flexural strength. Especially well suited for renovation & reclad. Saves on back-up framing & structure requirements. Reduce installing labor costs. Used on building exteriors throughout the world. Also elevator cab & lobby cladding, ceilings & locations requiring real stone but less weight.

Stone Panels, Inc.

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The Equator by Rinnai

The Equator gas-fired infra-red room heater is designed for efficient zone heating in bathrooms, kitchens and other small rooms. This radiant heater, powered by LP or Natural Gas, is 99.9% energy efficient and includes a 3 year full warranty covering 100% parts, labor and shipping cost with absolutely no prorating. Rinnai's feature rich heaters include contemporary styling, cool-to-the-touch cabinets, convenient top mounted controls, easy installation, plus the safety benefits of an Oxygen Depletion Sensor. The Equator comes in a choice of two A.G.A. certified models from 5,000 to 10,000 BTU's and can be easily fitted with an optional base to accommodate free-standing application. Rinnai America Corp., 1662 Lukken Industrial Drive West, LaGrange, GA 30240. (800) 621-9419

Rinnai America

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New Fireplace Tested as a Wall Furnace

Heat-N-Glo Fireplace Products has taken its direct-vent technology and incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) and has a AFUE (Annual Fuel Utilization Efficiency) rating of [illegible]. Also, the 6000 Supreme is [illegible] with a variable regulator [illegible] the flame and BTU [illegible] with the turn of a dial. [illegible] West Hwy 13, [illegible] 1-800-[illegible]

Heat-N-Glo

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Bicycle Lockers

CycLockers are all-steel modular bicycle storage cabinets that accommodate two bicycles per unit. Modules can be used individually or in linked groups sharing common walls. Choose from over 170 coating colors, two-toned color schemes, or stainless steel versions. For new brochure call 1-800/547-1940 ; request extension 530. Columbia Cascade Co. Portland, Oregon.

Columbia Cascade

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Accessible Lavatory Insulation

A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog.

Plumberex

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OSB: Performance by Design

Get the latest word on oriented strand board, the engineered structural panel. Range of panel size and thickness means fewer design constraints and less waste. Applications include: wall sheathing, roof sheathing, subfloors, single-layer floors, and I-beams. Plus, OSB is approved by all major model building codes. Call the Structural Board Association (416) 730-9090 or fax (416) 730-9013.

Structural Board Assn.

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Chadsworth Columns

Color brochures feature wood, fiberglass, polyester, E.P.S., stone and marble columns. Variety of sizes and styles. Round, square or octagonal with plain or fluted shafts. Loads-bearing for exterior or interior applications. Job site delivery. Largest selection anywhere. For catalog (800) 394-5177. Sales (404) 876-5410. Free brochures.

Chadsworth Columns

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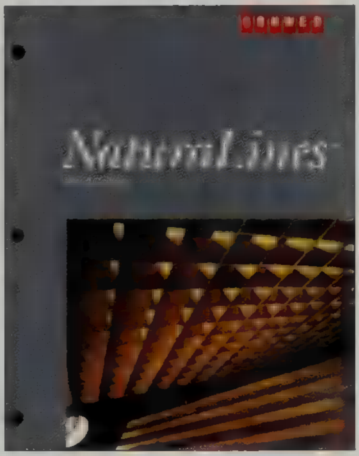
Applied Design by Stuart Dean

When a new architectural design technique is impressive enough to be used by firms like Pei, Cobb, Freed & Partners and Frank Williams and Associates, at only half the price of etching, it catches everyone's attention. Stuart-Dean's Applied Design is a versatile method for decorating and refinishing elevator doors, metal, wood or glass. It can often be applied on site, overnight. You can choose stock patterns or custom artwork. 1-800-322-3180.

Stuart Dean

Circle 68 on Inquiry card

Conwed Respond Ultimate I Panel



Conwed Respond Ultimate I is an acoustical wall and ceiling panel designed for use in areas requiring abuse resistance and acoustical absorption. It utilizes a glass fiber core faced with an acoustically transparent open perforated rigid vinyl sheet and wrapped with fabric or vinyl. Ideal for use in: gymnasiums, theatres, and multi-purpose rooms. Conwed, 1205 Worden Ave. E., Ladysmith, WI 54848, 800-932-2383, Fax: 800-833-4798.

Conwed

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Concrete Waterproofing by Crystallization

Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures.

Xypex Chemical Co.

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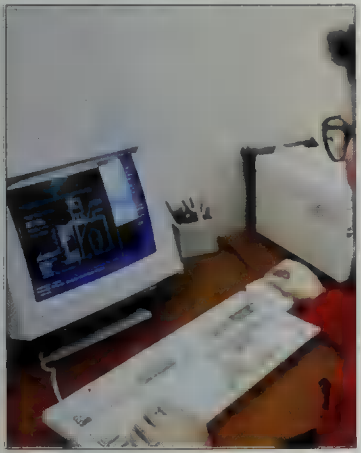
SENERGY CAD-NET SOFTWARE



Architects can cut hours to minutes when designing exterior walls with Senergy's CAD-NET, a new AutoCAD - compatible (V.11 and higher) specification & detail drawing program for Exterior insulation & Finish Systems (EIFS). The CAD-NET program provides specifications & details for Senergy's Senerflex, Senerthik & QRsystem. CAD-NET is available on either 3-1/2" or 5-1/4" diskettes. **For more information: Senergy 1-800-221-WALL. Leaders in EIFS.**

Senergy

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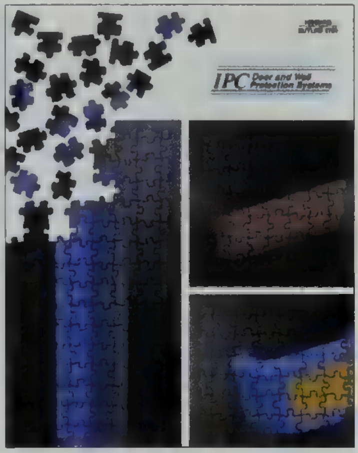
Door and Wall Protection Systems



IPC - Institutional Products Corporation is a manufacturer of high impact door, corner and wall protection systems. Our catalog illustrates a product line that includes Handrails, Corner Guards, Wall Guards, Kickplates and Wallcovering. Our durable vinyl products, offered in 50 designer colors, provide an attractive way to protect interior finishes from damage.

Institutional Prods. Corp.

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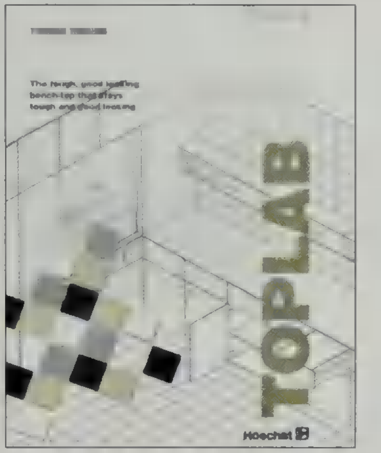

Trespa® Toplab® grade resists strong acids, e.g. 96% Sulfuric, and other chemicals. Toplab is durable, easy-to-clean, and available in colors. It will not rot, rust, delaminate, or support bacteria. Toplab is available in sizes up to 1" thick and 12' in length; it remains flat for excellent butt joints and is 25% lighter than epoxy. 1-800-4-TRESPA.

Hoechst Celanese Corp.

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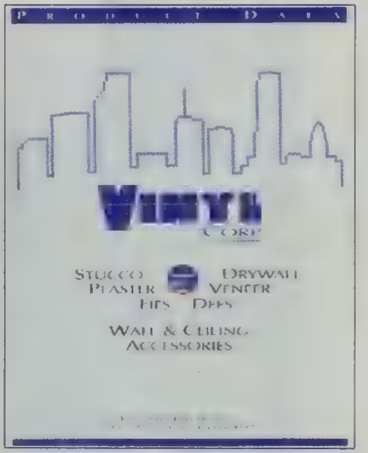
New Product Catalog



Vinyl Corp. manufactures the most extensive line of over 500 quality wall and ceiling accessories for stucco, plaster, EIFS, DEFS, veneer and drywall. All accessories are exclusively manufactured with Geon® Virgin Vinyl compounds. For more information call (800) 648-4695, and ask for Vinyl Corp's new 44 page product catalog. VINYL Corp., 8255 NW 70th Street, Miami, FL 33166

Vinyl Corp.

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Manufacturers' Spotlight

Smith Steelite FOAMWALL® Insulated Wall Panel Systems

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Smith Steelite

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Raymond Enkeboll Designs

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Zeluck Architectural Windows & Doors

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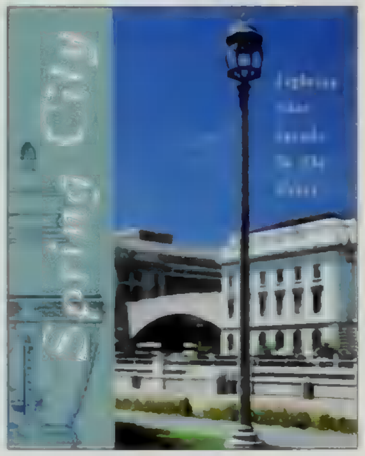

Cast iron is universally acknowledged to be the best material for outdoor lighting standards: beautiful, durable, and virtually maintenance-free. Spring City's full-color, 8-page catalog shows traditional cast iron lighting posts, bollards, traffic control pieces, and more from the country's widest selection. Spring City Electrical Manufacturing Company, Spring City, PA.

Spring City Electrical

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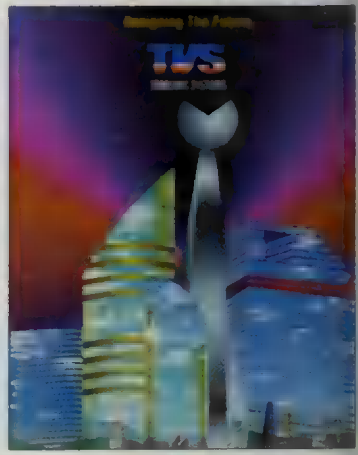
Automated Vacuum Transport Systems



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Call (800) 959-9559.

Atlas Door Corporation

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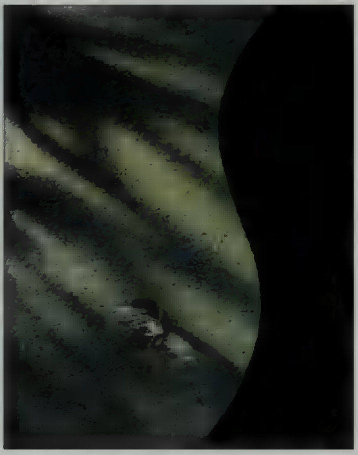
Multicolor Wall Finishes



Zolatone multicolor wall finishes for interiors are readily available in more than 30,000 distinctive varieties, with custom color matching an additional option. Each Zolatone multicolor combines millions of color particles to create an exceptional aesthetic appearance. All Zolatone multicolors feature ContinuousColor™ quality, and possess maximum durability. Available in both conventional, and waterbased formulations. Providing five decades of service, and innovation. Zolatone. A product of Surface Protection Industries International. Call 800-416-8584.

ZOLATONE®

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Mestek-Sterling

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Mapes Industries

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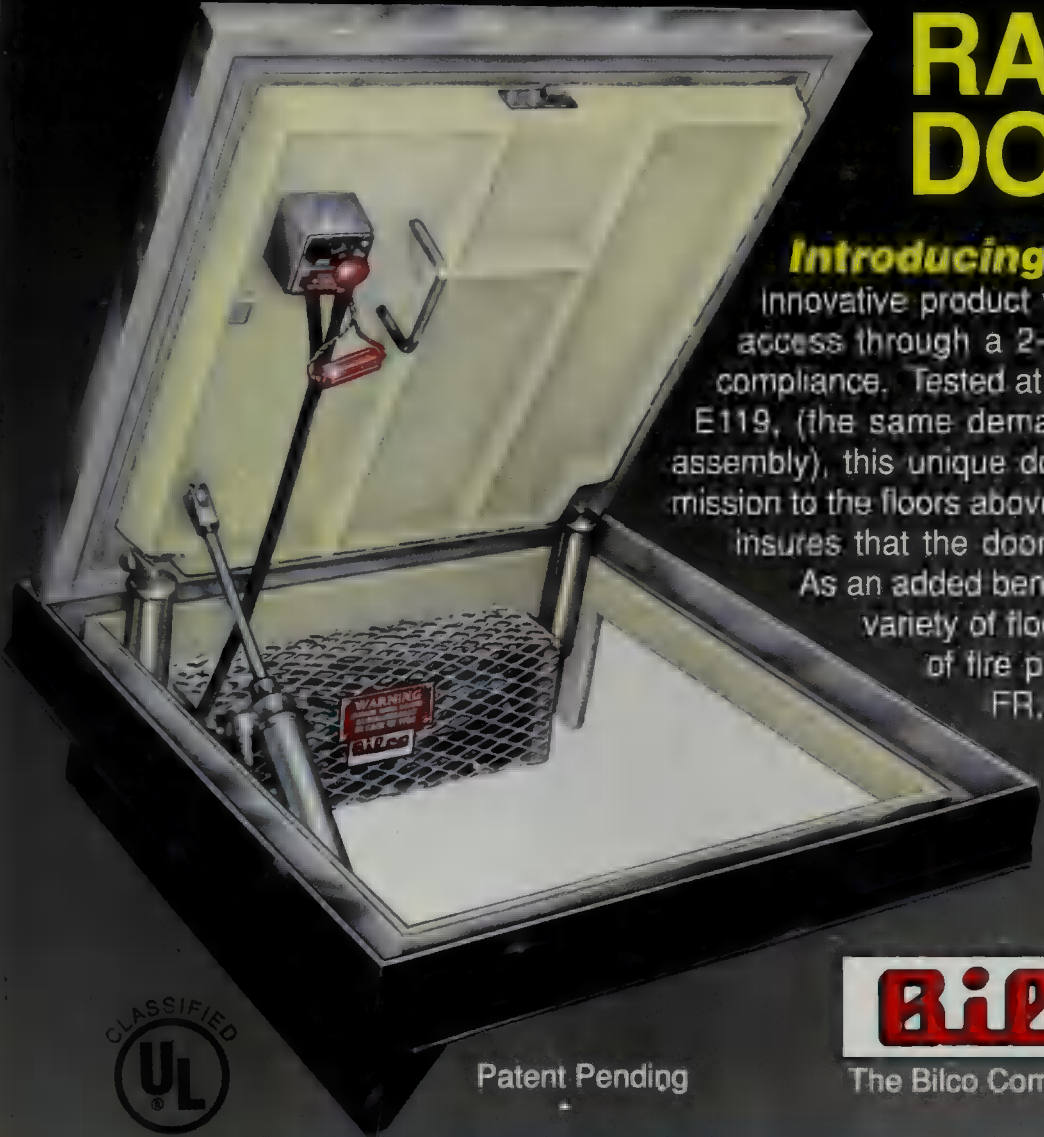

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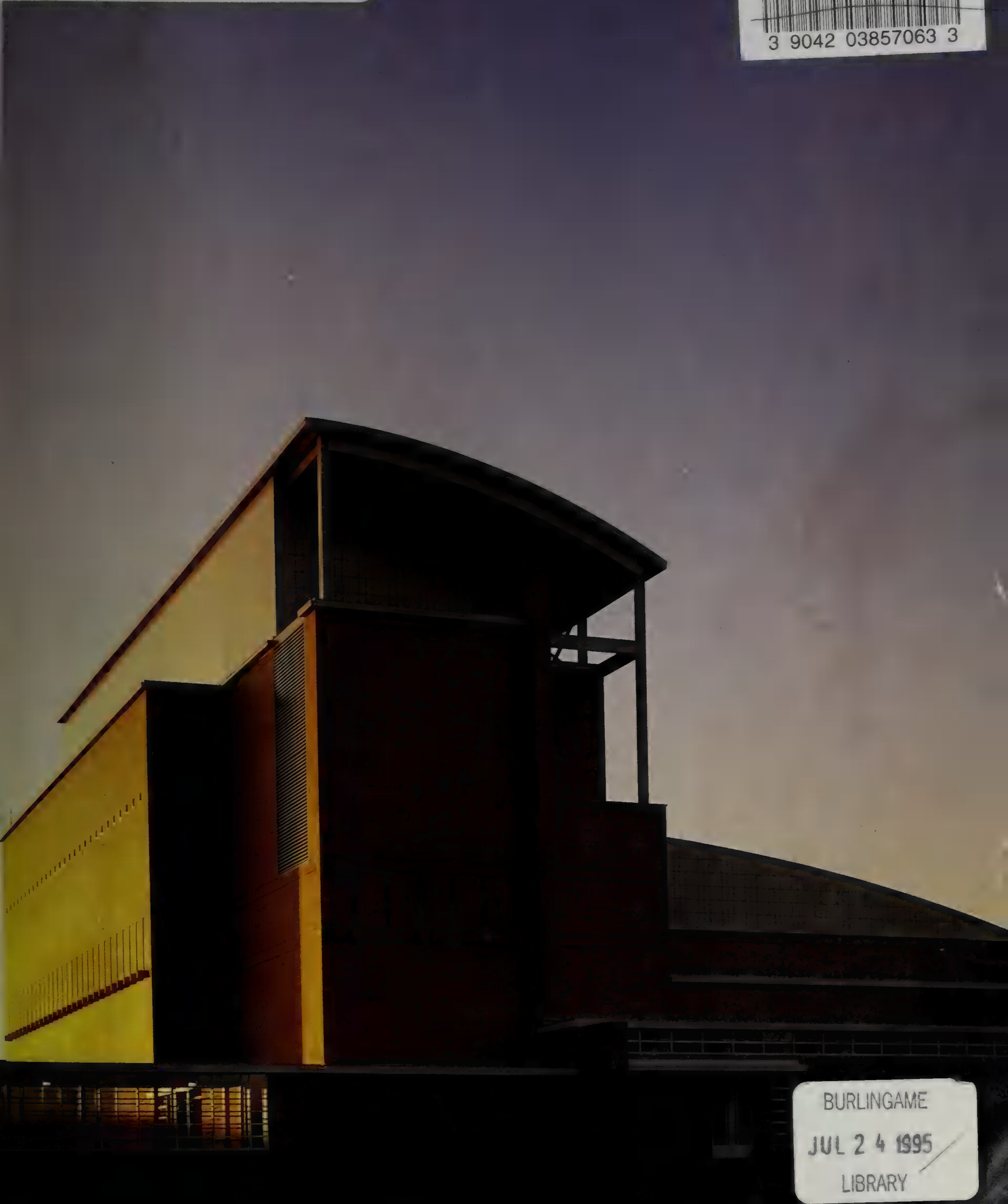

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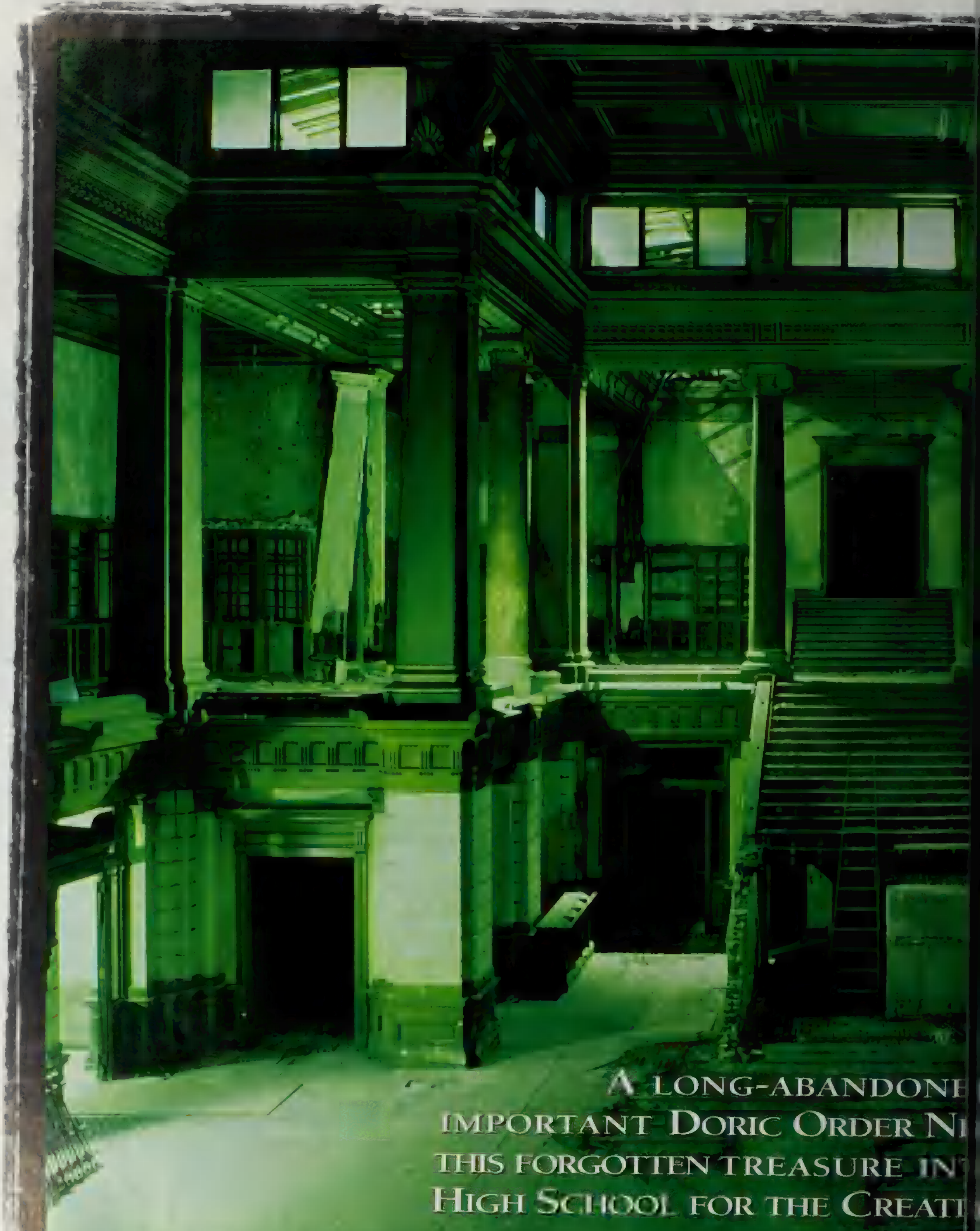

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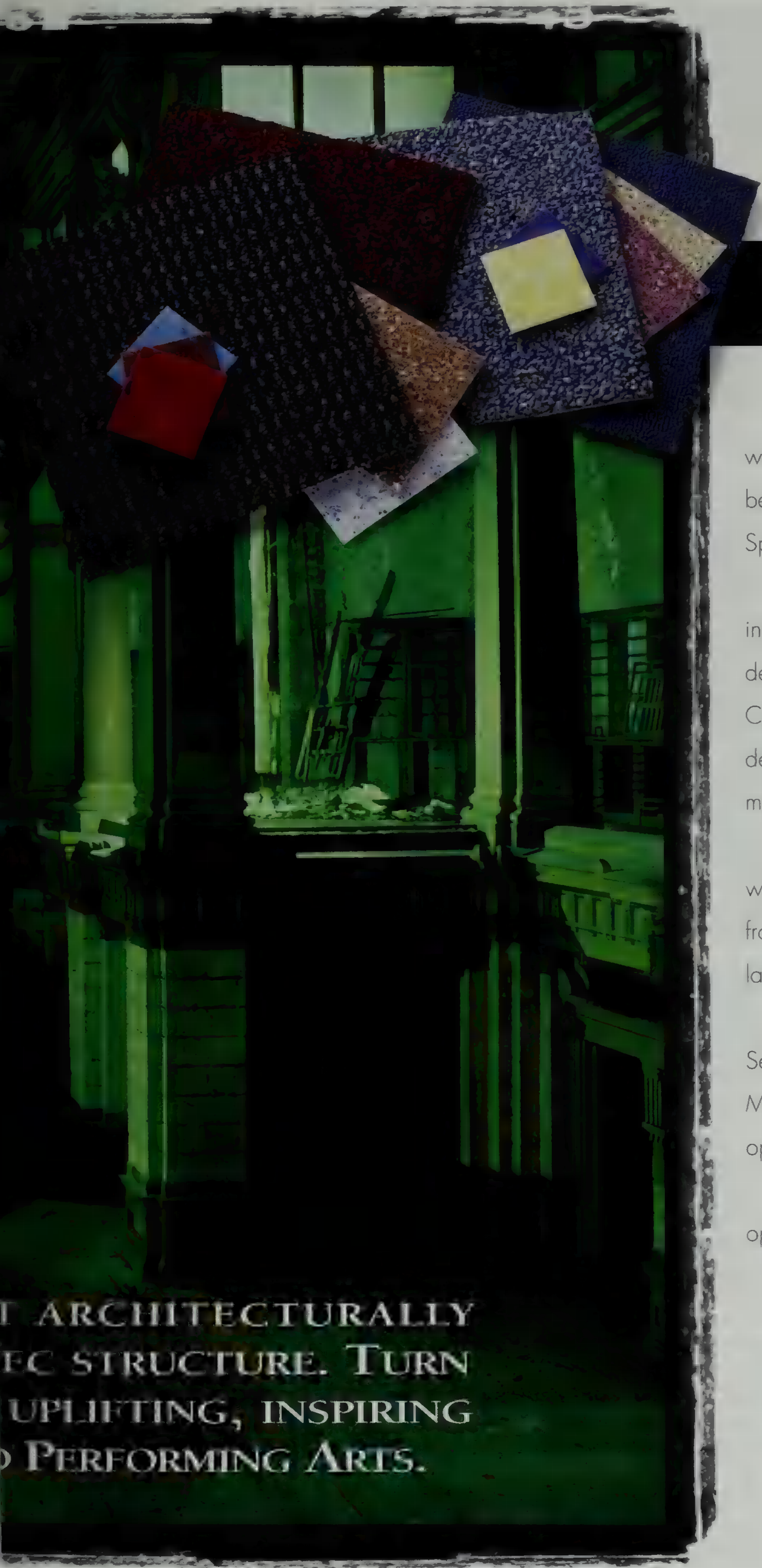

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Who Should Design Buildings?

The April 1995 Editorial in record, "New A vs. E Dispute Is a No-Win Case," contains some erroneous statements that need to be corrected.

For example, the editorial erroneously insinuates that few states permit engineers to design buildings. The truth is that 45 states have engineering licensing statutes which specifically define the "practice of engineering" to include the "design of buildings and structures." The five other states authorize engineers by statute to design buildings.

Also, the editorial claims that legislatures in most states have assigned the authority to design buildings for human occupancy to architects. The truth is that, at the very most, 16 states have architectural licensing laws which refer to "human occupancy or habitation."

Since this is an important issue, it is imperative that the information used in reporting on this matter by a respected publication such as Architectural Record is factual.

Monte L. Phillips, Ph.D., P.E.
National Society of Professional Engineers
Alexandria, Va.

According to an August 1994 AIA survey of overlap provisions in licensing laws: 25 states exempt only architectural services "incidental" to the engineer's area of expertise from requirements that prohibit engineers from practicing architecture. A similar [illegible] applies to architects, [illegible] have language that [illegible] in the [illegible] from [illegible] the lawful practice of [illegible] by law."

Eleven states' laws don't make reference to interprofessional practice. Of those, nine licensing boards prohibit engineers from practicing architecture; two permit engineers to practice architecture. Illinois, Indiana, Iowa, Louisiana, and Wisconsin, with variations and limitations, permit architects and/or engineers to design buildings.

Architects are guilty of lobbying for protectionist laws that exclude professional engineering firms from "practicing architecture." New Jersey, Pennsylvania, Iowa, and Oklahoma limit the legal practice of architecture to professional service corporations who have a substantial, if not majority, ownership by licensed architects. Their idealism goes to the extreme of prohibiting licensed architects from general practice as an employee of a non-architect owned corporation..

Licensing laws serve the public interest when they require architectural work to be executed by licensed architects, not when they are designed to maximize market share for certain narrowly defined corporations.

Herbert G. Zeller, ARA
Vice President
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Having read your article in the April issue, I felt I had to make my opinion known concerning the practice of architecture. There is a rule that applies to any profession: exclusive or exclusion. The lifeblood of any profession is the ability to do it alone. If there are four different groups doing the same function, competition will lead to the death of some. Consider the airlines of the 60s to the airlines of the 90s. Some are fighting for their lives. Even

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July 5 and 12
Guest lecture series in Classical Architecture includes a panel discussion of "Classicism and the Media" (July 5) and a presentation by Allan Greenberg. Call 212/966-0693 or fax 212/570-7374 the Institute for the Study of Classical Architecture at the New York Academy of Art for details.

July 10-August 4
A summer series of professional-development courses at Harvard's School of Design offers a variety of subjects, ranging from "Massimo Vignelli on the Language of Design," (July 11-12), to "Marketing Strategies, Presentation Skills, and Getting Published" (July 31-August 2). Call 617/495-1680 (fax 617/495-5967) for the entire list of courses.

July 30-August 2
Illuminating Engineering Society's annual conference, Marriott Marquis, New York City.

Through July 29
"New York City Landmarks" art and photography exhibition in celebration of 30 years of preservation is showing at the Michael Ingbar Gallery of Architectural Art, 568 Broadway, New York City; 212/334-1100.

August 4-6
Society of Marketing Professional Services annual conference,Westin Copley Place, Boston. Call SMPS at 800/202-7677 for further details.

Through August 13
Exhibition of "Rem Koolhaas and the Place of Public Architecture" consists of six architectural designs and three urban projects by the Dutch architect. Wexner Center for the Arts, Ohio State University; 614/292-0330.

Competitions
- Central Glass International Architectural Design Competition entries are due July 20. The theme this year is "Guest ▪

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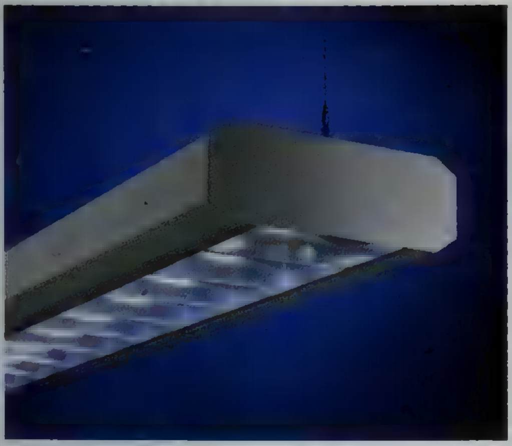

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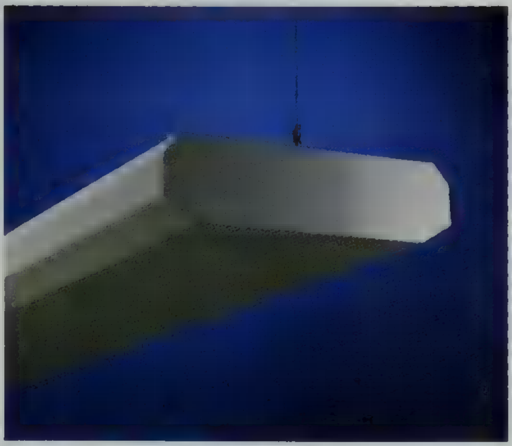

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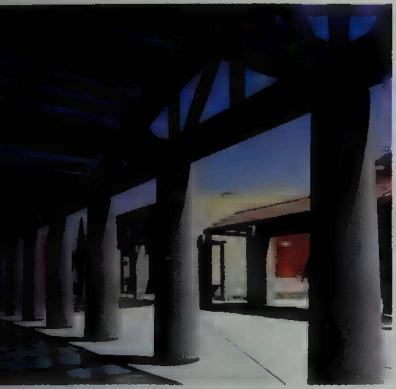
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ARCHITECTURAL RECORD Editorial

Delighting That Customer

It has become a part of current American business sensitivity training that the goal of a vendor of goods and services is above all to "delight the customer." And while the word "delight" is perhaps a trifle on the sensuous side, the underlying message is one that the architectural profession should heed.

First, it reminds us that there is someone out there who not only pays the bills, but who is responsible to a whole array of constituencies—users, voters, trustees, stockholders, the public—and unless this customer (as architects we prefer to use the word client, but the distinction has as much to do with arrogance as with any substantive difference in meaning; I will use the terms interchangeably) is satisfied, we are missing the real point of professional service.

Second, "delighting" the customers means having to uncover what it takes to delight them. Here's a sampling of techniques that are known to work in other disciplines and businesses:

- Read what the customer reads and go where the customer goes. There are the business magazines and trade conferences patronized by the school or hospital administrators, facilities managers, shopping center executives, government procurement officers, correctional officials, state and county officials involved with infrastructure and transportation matters, the judiciary. That's where you'll find the issues and concerns that motivate or trouble those customers.

- Survey your customers. Anything from a short letter to a detailed questionnaire helps. Clients will be flattered, not put out, for being asked to assess your performance on past projects. Do it both with the repeat client and one who switched to another architect. Comments should be frank and specific; no hard feelings.

- Look to the details of the relationship. Worry about how the telephones are answered—in this age of faceless automated communications, arrange access to a live person at the other end of the line. Choreograph a visit to your offices with flair and gear it to the client's style—formal reception with china coffeecups to a shirtsleeves meeting with plastic mugs and cardboard plates. Follow up clients' requests for information promptly.

- Organize focus groups of past and present clients. A new species of consultant known as a facilitator has emerged in recent years with the gift of extracting, impartially, viable responses from such groups.

- Look beyond the immediate project and toward a long-term relationship. Negotiate a fee that will give a profit, but don't overlook the long-term investment value of extra attention—for example in the frequency of site visits to ensure specified levels of workmanship—even if this means an erosion of profit.

There's nothing remotely original about these remarks. They are intended instead to underscore some basic but critical issues that are driving decisions in the current client environment. Nor does any of these ideas take over from the necessity to manage the total quality of services, at whatever level these are agreed upon between you and the client. But in this tight climate, it's the details that spell the difference between a client gained and a client lost. *Stephen A. Kliment*

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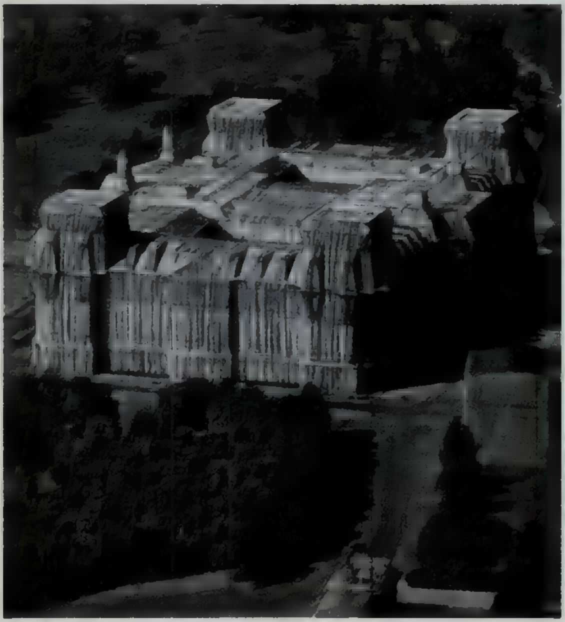
Berlin

Before Foster Restores the Reichstag, Christo Wraps It Up



It is a 24-year dream come true. Christo and his wife, Jeanne-Claude (above left)—the couple who once wrapped Paris's Pont Neuf—wrapped Berlin's Reichstag late last month. The Christo/Reichstag project was rejected six times by various German parliaments and finally approved in 1994.

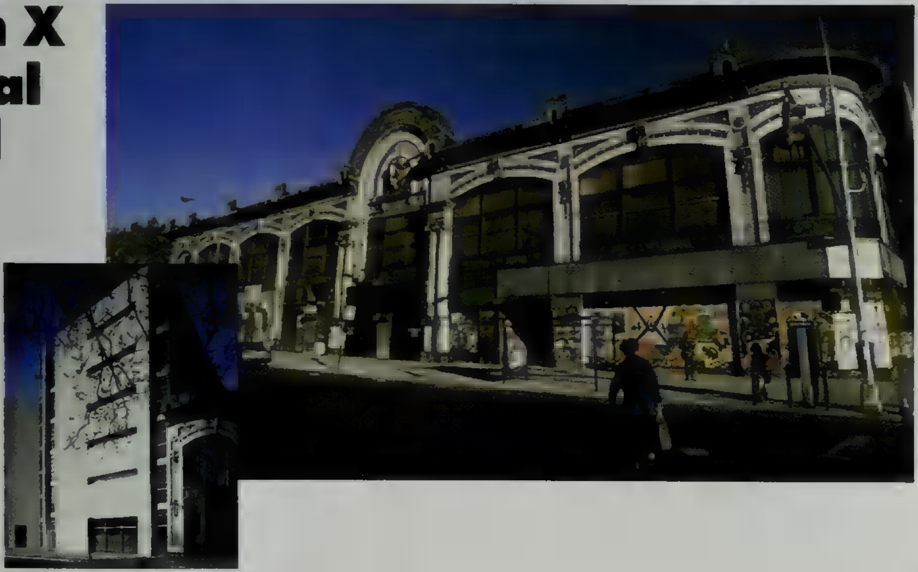
It took several days to build the scaffolding and drape the 1.1-million sq ft (90 tons) of canvas over the building. To deter vandals from clipping off pieces of it, 1,200 monitors were installed. (The fabric is to be recycled so it won't be sold as art.) The parliament building, empty and awaiting its renovation/restoration by Norman Foster & Associates, remained wrapped for two weeks. (Foster won the competition for the redesign of the building [RECORD, September 1993, page 31].)

Christo and Jeanne-Claude see the work as more a process than an object, and it's hard to say which is the more potent image—the long political struggle to realize the project or the wrapping itself. The building recalls many key moments in German history. Once the symbol of the short-lived Weimar democracy, it was set on fire by Hitler's henchmen in 1933. As Berlin fell in 1945, the Soviet flag was planted over its parapet. When Christo and Jeanne-Claude began lobbying the German parliament in 1971, the Reichstag abutted the infamous Berlin wall. Like these images, the artists' work is fleeting—a mysterious package with an unknown destination.

Nicolai Ouroussoff

New York City

Malcolm X Memorial Planned



© Addison Thompson photo

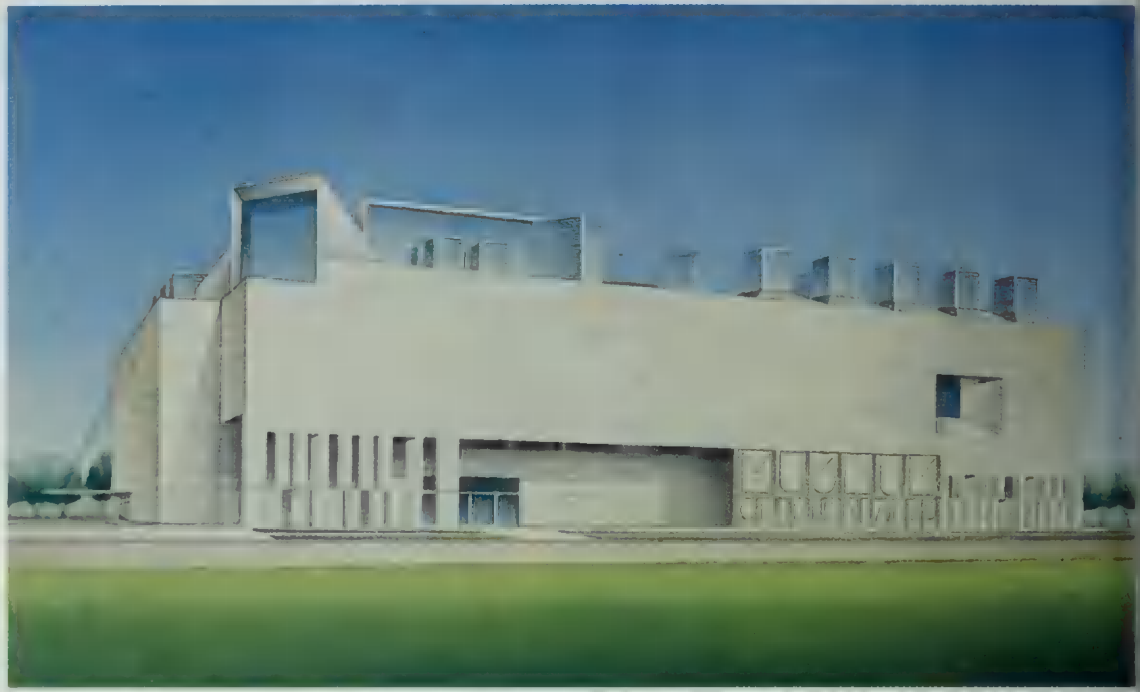
A $7-million restoration of the facade of the Audubon Theater—the building in Harlem where Malcolm X was murdered in 1965—has just been completed by Davis Brody Architects. The room where he stood when he was shot will be turned into a museum or restored to its original condition on the night of his murder. Only the facade of the theater was preserved. The major part of the building site will become a research park for Columbia University. The first of five structures to be built is the Audubon Business and Technology Center (far left photo).

Nicolai Ouroussoff

Houston

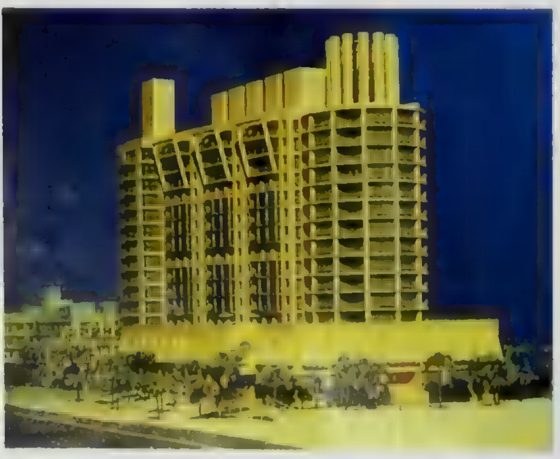
Moneo's Addition Joins Mies' Earlier Work At Fine Arts Museum

Nearly two years in the making, the schematic design for an addition to the Museum of Fine Arts in Houston by Rafael Moneo has been approved. The 185,000-sq-ft Audrey Jones Beck Building will occupy a block across Main Street from the present museum, and connect to it by an underground tunnel. The original museum was designed in 1924 by William Ward Watkin, with additions by Mies van der Rohe in 1958 and 1974. The Beck building will be a rectangular two-story block, clad in Indiana limestone like the original, with a perforated screen facing the Main Street entrance and a bristling roofline of skylights. It will complete a 15-year master plan for the museum's "art campus" and make it the seventh largest exhibition space in the country. Construction will begin in late 1996, with completion expected by 1999. *Gerald Moorhead*



Miami Beach

Art Deco District To Get a Graves

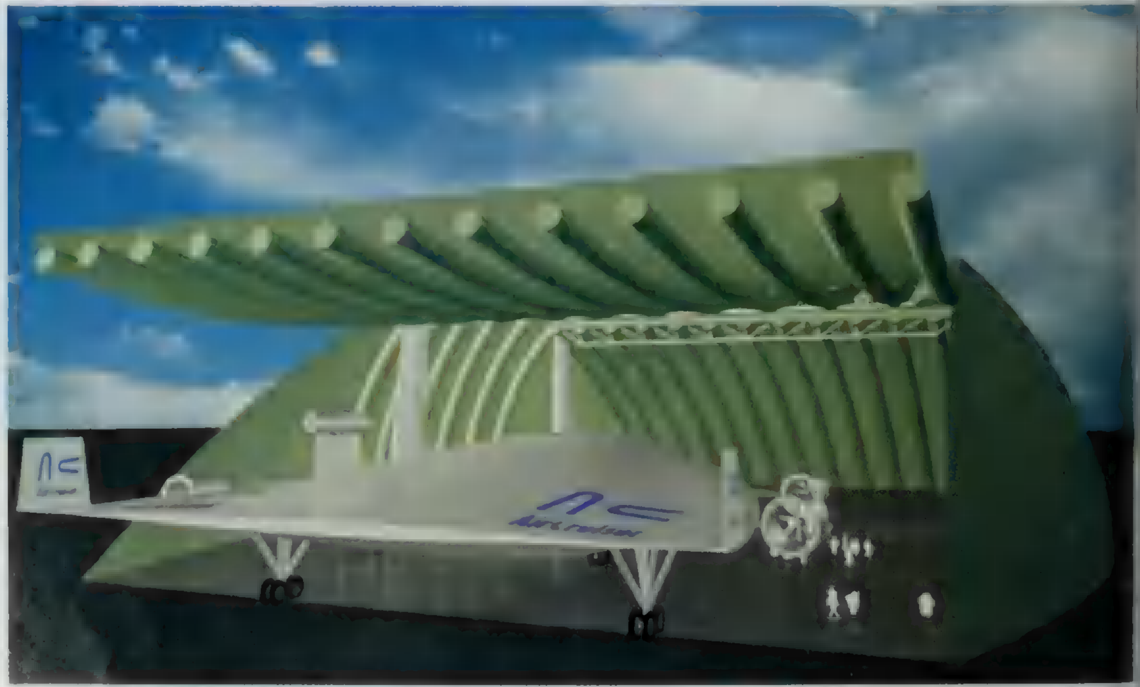


© Mark Balay photo

A $25-million Michael Graves-designed condominium complex will rise by 1997 in the Art Deco district of Miami Beach. In order to break down the scale of the building, Graves has divided it into various components: twin towers look out on Miami, while a 15-story [illegible] tower faces the ocean. [illegible] are broken into smaller panes to [illegible] the residential character of the [illegible]." A plaza will connect the two [illegible]. The partially landmarked [illegible] become part of the project's retail [illegible] lobby and facade will be restored. ■

England

Architect's Inflatable AirCruiser Awaiting Takeoff



Architect William Alsop, of Alsop and Störmer, has designed an AirCruiser inflatable plane supported by inflatable beams to be used as a 55,000-sq-ft flying exhibition hall or a sight-seeing cruise ship with air-filled cabins. The manufacturer, Stewkie Systems, and its aircraft designer, Keith Stewart, hope the project will be funded by the United Kingdom Millennium Fund. It would have a range of 500 miles and travel at 200 miles per hour. For now, it is sited at a run-down World War II training field in Somerset, England. ■

oronto

Yorkville Residents Roam Canadian Landscape—In an Urban Park

en Smith Landscape Architect and Oleson Vorland Architects' winning design for a ark in the Yorkville section of Toronto is a eries of gardens planned like a Victorian col- ection box (used to house butterfly or rock pecimens). A group of miniature gardens is rranged along the original lot lines of row- ouses that once stood on the site (3). Each arden is a microcosm of different Canadian andscapes, including a misty pine scape (1) nd a prairie field and birch stand (2). In one arden, a 700-ton rock outcrop was moved 50 miles and painstakingly reconstructed. In nother, a rain curtain gently weeps. The ark's distinct paving was extended across earby streets to weave the park into the eighborhood. Part of the park faces a high- ise skyline; the other looks out on extant owhouses. Local residents had lobbied for he park since the 1950s. ■

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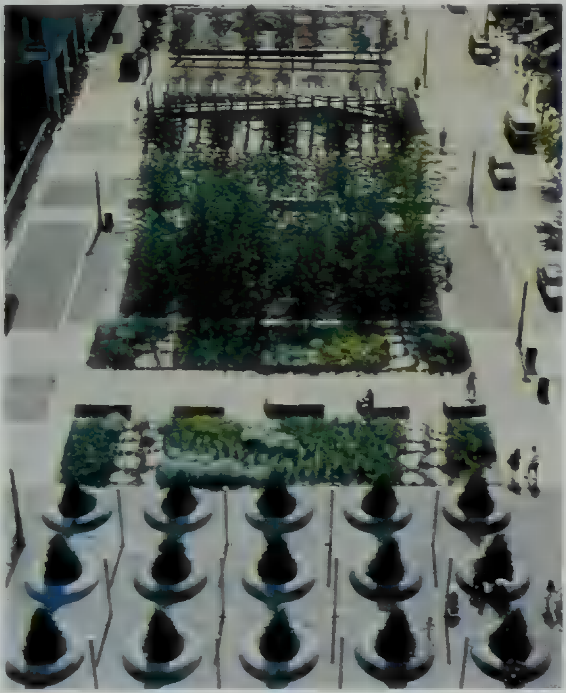

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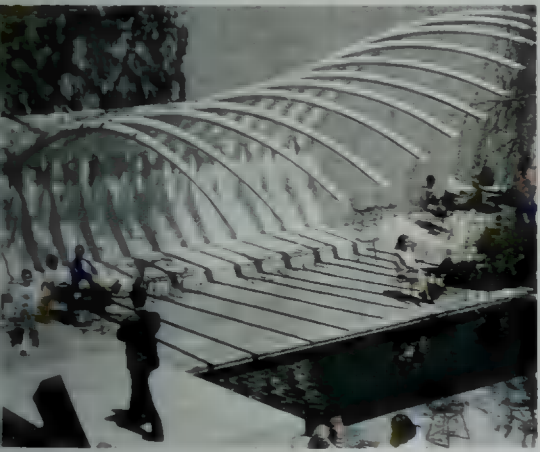
© Steven Evans photos

Venice

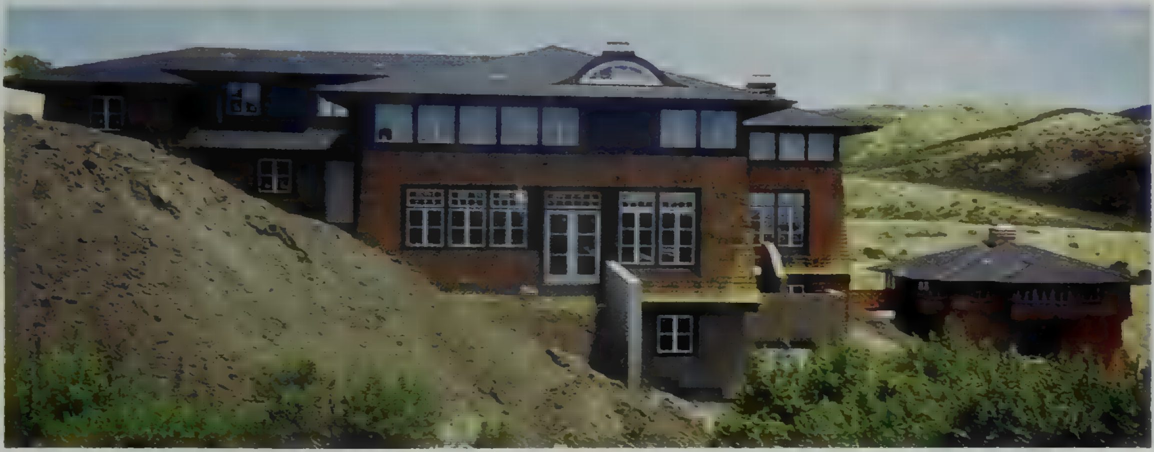
Calatrava's Moving Fingers at Play



sculpture by the Spanish architect and ngineer Santiago Calatrava has been resur- ected in Venice. The "moving fingers"— ade of 40 tons of concrete—will gently float bove water fronting the Fondazione Angelo Iasieri on the Grand Canal. The structure is upported from the stone facade of the build- ig. The electronically-controlled "fingers" ill curl over the water and move rhythmical- while water taxis cruise underneath. The iece was first seen two years ago in the ummer Garden of the Museum of Modern rt in New York City. ■

California

Everett Nilsson Architects' House Opens Windows to the Sea



The Drury residence, designed by Everett Nilsson Architects in association with Arthur E. Everett, Jr., sits solidly on the soft golden brush of a hill on Half Moon Bay, just south of San Francisco. The design takes advantage of spectacular views. A 150-ft-long pergola connecting the main house to a smaller guest house frames a dramatic view of the Pacific to the west. The guest house can also be entered over its own bridge. A cedar-clad, octagonal stair tower (right) with a copper roof marks the entry to the main house. Garden walls and landscaping will be added soon. ■

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riefs

wards

Renzo Piano won the 1995 Praemium Impe-ale Award for architecture. The award, with prize of $176,000, was announced by the apan Art Society in London. Piano will also eceive a medal from the Japanese Imperial amily.

New York City Transit Authority has won a ard Award for its painstaking efforts to ehabilitate 400 subway stations. The award as presented at the National Arts Club.

The Leonard Parker Associates, Architects, nc. with Sam Min, Inc. Architects and Engi-eers, have won a competition for the EPCO Cultural Center in Seoul, Korea. he 600,000-square-foot complex will include power museum, concert hall, conference enter and a working power substation.

n the Boards

The Thaani Hetzel Partnership in Washing-on D.C., is designing an 80-acre master plan or Koramangala, India, outside the city of angalore. Duany Plater-Zyberk Architects nd Town Planners are consultants on the roject.

Gunnar Birkerts and Associates, Inc. is eveloping a historical preservation plan for e central market district in Riga, Latvia. he 800,000-sq-ft district was originally con-tructed in 1800.

The Boston Society of Architects has esigned a historical map of lesbian and gay oston. For a copy, send a 55 cent SASE to he Boston Society of Architects, 52 Broad treet, Boston, Mass. 02109.

egendary L.A. Architecture on View

Enrollees in an extension course at UCLA is summer will be touring some of the more mous houses in Los Angeles. First stop will e the Schindler House on July 11; houses by rank Lloyd Wright, Frank Gehry, Richard eutra are also on the must-see list. Call 10/825-9061 for enrollment information.

John Buck, the controversial Chicago devel-per who recently demolished the Mies Van er Rohe-designed Arts Club there, is under ttack again. He recently decided to invest an dditional $1 million to improve the design of shopping mall on Michigan Avenue by eyer Blinder Belle. The money will be spent upgrade building materials, but local archi-ects feel it is too little too late. They lament e destruction of several older buildings on e site, and have criticized the new build-g's "boxy exterior." ■

United Nations

Habitat Conference Asks, "Can Our Cities Be Saved?"

It's a brave new world—and someone has to fix it. A Conference on Cities, held in New York City in June, examined five North American cities for clues on how to save the urban metropolis of the future. Chaired by Robert Geddes, professor of architecture at New York University, the conference was part of a United Nations effort to create a library of urban models to help developing countries avoid the mistakes the West has already made. In June 1996, the United Nations will hold a second conference in Istanbul on urban settlements.

The first United Nations Conference, held in Vancouver in 1976, focused on housing problems in the developing world. In Istanbul, the hope will be that careful planning can help cope with a world where the majority of the population will be concentrated in urban centers by the next millennium. The dangers are clear. ["The victims are] the urban poor everywhere," said Dr. Wally N'Dow, the Secretary General of Habitat II. "Not only because of environmental degradation, but because of inadequate housing, unaffordable housing—or simply no housing."

The intent at the New York City conference was to dig for some solutions. "What is needed is some intellectual input," said Aliye Pekin Celik, the U.N. representative at the conference. So far, the hunt for answers has produced a plethora of urban images. The discussions ranged from urban sprawl to the implications of suburbia to justice in the city throughout history.

Tokyo turns congested streets into shopping malls (top); Mexico City is battling pollution (above) and a population explosion.

Los Angeles was presented as an "urban structure that doesn't look to the model of the European city," and upheld as "the first expression of a completely post-fordist economy." Other cities dramatized the contradictory nature of the problems these cities face: Mexico City will have a projected population of 25 million by the year 2010, while Vancouver's population has doubled over the past three decades to a mere 1,600,000.

The Toronto delegation seemed the most positive. The relative health of Toronto is supported by strong neighborhoods and "community-based problem-solving." Cooperation between local activists and the public sector has reduced poverty in one of the world's most multicultural metropolses. The general consensus seemed to be that even as the city grows, its scale has to be broken up. ■

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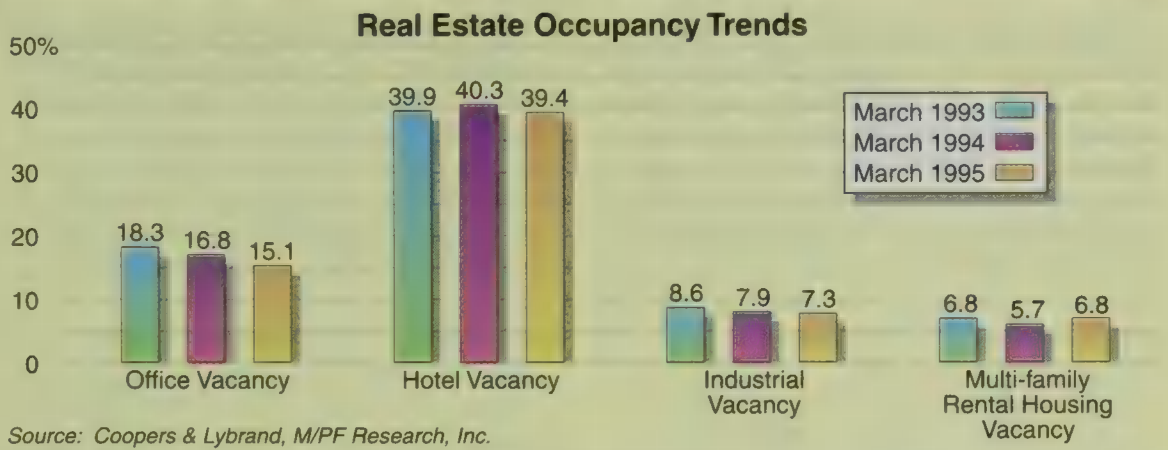
Indicators

Commercial vacancies subsiding
According to a review of real estate in the U. S. by Coopers & Lybrand, the office sector is improving fastest. Little new construction offsets declining vacancies. Industrial vacancies are also improving as manufacturing grows. The overbuilt hotel category is healthier, too. (Figures in that sector are usually calculated as average daily occupancy; they are shown as vacancies for graphic clarity.) Multi-family has lost some momentum in the 1993-94 single-family boomlet. ■



Source: Coopers & Lybrand, M/PF Research, Inc.

Cost increases leveling off
Labor and material cost increases have abated in the last year as construction growth has flattened. The runup in house construction from 1993 to 1994 was accompanied by shortages of lumber, which shot up in price. Housing starts have slackened and lumber prices have fallen considerably. In 1994, prices rose fastest in parts of the country least affected by the early '90s recession—the Southeast and Midwest. Prices in most of these cities (Atlanta, Cleveland, Dallas, Minneapolis, New Orleans) fell back in the early months of 1995. The Northeast, which joined the expansion late, shows modest price rises in the latest figures, but increases are not across the board. New York City and Philadelphia are up; Boston is off. The great number of cities showing little change or lower prices suggest how competitive much of building construction remains. Even though retail building has gone up considerably in recent years, for example, much of that has been in the most competitive building type, "big box" discount stores. ■

Building Cost Indexes

	12/1990	12/91	12/92	12/93	12/94	3/95	6/95	% change from 3/95	% change from 6/94
Atlanta	2238.80	2278.83	2404.75	2477.13	2480.55	2471.92	2445.34	-1.0	-2.7
Baltimore	2579.90	2508.06	2607.76	2673.24	2830.66	2841.54	2843.05	0	+1.4
Birmingham	2149.96	2189.75	2279.26	2352.15	2439.28	2505.65	2501.36	-0.1	+0.2
Boston	3110.03	3102.31	3355.57	3539.63	3601.94	3549.71	3493.95	-1.6	-2.8
Chicago	2893.6	3034.72	3162.99	3325.70	3415.62	3415.62	3418.52	+0.1	+1.0
Cincinnati	2638.73	2674.15	2817.16	2920.20	3001.15	2952.19	2923.77	-0.9	-0.9
Cleveland	2886.93	2903.81	2903.1	3088.76	3218.85	3218.85	3225.56	+0.2	-2.8
Dallas	2061.61	2215.88	2278.21	2307.62	2448.62	2431.37	2466.77	+1.4	-4.6
Denver	2321.28	2375.26	2438.39	2501.00	2608.72	2659.85	2571.02	-3.3	-3.4
Detroit	2974.47	3046.92	3136.74	3278.20	3424.95	3413.94	3392.36	-0.6	+1.6
Kansas City	2645.28	2637.20	2677.21	2873.20	2916.25	2916.25	2902.18	-0.5	-0.5
Los Angeles	3020.51	3097.83	3198.66	3359.03	3420.42	3404.18	3416.90	+0.4	+0.1
Minneapolis	2648.43	2711.5	2811.14	2989.48	3131.05	3087.53	3071.39	-0.5	-3.9
New Orleans	2220.20	2260.52	2360.24	2330.86	2469.21	2514.91	2474.83	-1.6	-5.0
New York City	3847.21	3997.91	4151.28	4343.76	4458.36	4500.65	4518.48	+0.4	+3.1
Philadelphia	3040.85	3169.81	3130.58	3532.34	3480.78	3480.78	3504.04	+0.7	+2.0
Pittsburgh	2717.08	2807.73	2954.64	3038.97	3218.37	3216.21	3183.21	-1.0	-2.0
St. Louis	2602.16	2686.93	2743.01	2840.58	3091.81	2970.20	3011.18	+1.4	+1.6
San Francisco	3245.04	3270.90	3298.09	3463.34	3519.17	3505.61	3531.80	+0.8	+0.9
Seattle	2552.58	2715.04	2787.74	2948.18	3024.48	3000.00	3005.51	+0.2	+0.5
20-City avg.	**2702**	**2751**	**2834**	**3009**	**3110**	**3103**	**3095**	**-0.2**	**-0.7**

Source: Engineering News-Record, Construction Economics Department. The Building Cost Index combines 68.38 hours of skilled labor weighted by the 20-city average of bricklayers', carpenters', and structural ironworkers' rates, plus 25 cwt of standard structural steel shapes at the mill price, plus 22.56 cwt (1.128 tons) of portland cement spot-priced locally, plus 1,088 board-ft of 2 by 4 lumber spot-priced locally. The base year is 1913 = 100. To compare a given city's costs by percent, divide one index into the other. Example: the index for a city for one period (200) divided by the index for an earlier period (150.0) yields 1.33, which means the costs in the later period are 33 percent higher than the earlier period. Likewise, the earlier period's costs are 75 percent of those in the later period (150.0 divided by 200.0 = .75 or 75 percent).

Short Takes

• **April construction volume drops 10 percent:** F. W. Dodge's Robert Murray says preliminary figures show that declines were across the board. For Murray's updated 1995 forecast see following pages.

• **OSHA backs off asbestos standard:** According to the National Roofing Contractors Association, OSHA workplace regulations will no longer require roofers to erect elaborate protective structures and wear protective clothing when roofing contains non-friable asbestos. NRCA had contended that these requirements would have been unnecessarily expensive and exposed roofers to overheating on hot roofs.

• **Colorful Buildings:** A 24-page booklet, "The Role of Colour in Building Identity," features winners of the Hylar International Award. Contact: Bob Rees, Strategy International Communications in Belgium: 32/2/679-0030 (phone); 32/2/660-5872 (fax).

• **Small-firm insurance:** Victor O. Schinnerer is offering a new professional-liability insurance program tailored for firms of seven or fewer that bill less than $250,000. Info from brokers or 800/762-5534. ■

Second-Half "Soft Landing" Depends on the Fed

In just a few months, the fickle financial markets have changed their outlook. In winter's gloom, investors pushed long-rates higher on rising-inflation worries. In spring's sunlight, these same investors shoved long-rates down on receding inflation fears. Are these lower rates a good omen for construction in the next six months?

Interest-rate bills come due

Fewer apprehensions about inflation are directly related to the rapid deceleration in economic growth. Six months ago, the economy was steaming along, registering a vigorous 5.1 percent real GDP gain in the fourth quarter of 1994. Then the effects of months of restrictive monetary policy kicked in, and real GDP growth was cut to under 3 percent in the first quarter. Now, growth is expected to advance at a 1.5-percent to 2-percent pace in the second quarter and slow even more in the third quarter.

When the Federal Reserve began tightening in February 1994, its purpose was to raise the cost of consumer credit, gradually reining in consumer expenditures to curtail growth it regarded as potentially inflationary. Consumers, however, were in the mood to shop, which they capped with frenetic holiday buying.

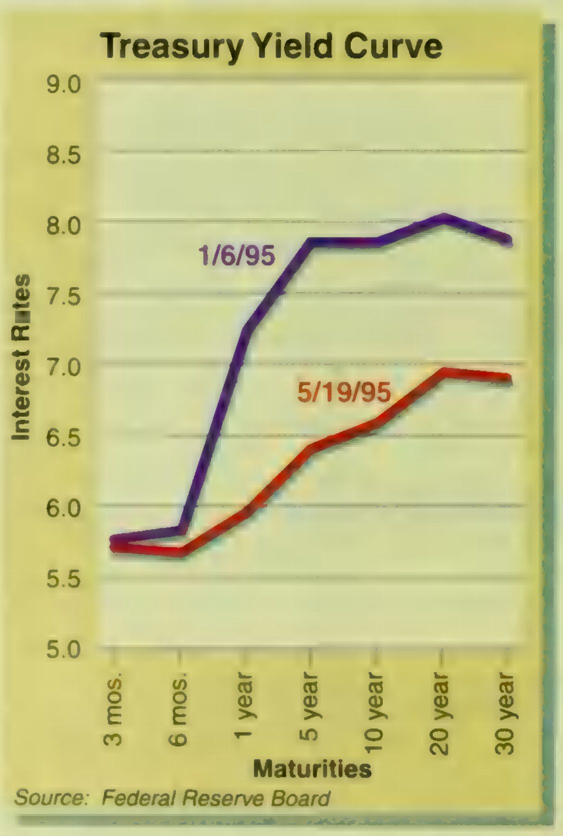
Early in 1995, the credit bills started rolling in, with higher interest payments. Quickly, consumers trimmed their outlays. The abrupt slowdown in sales caught goods producers unaware. Suddenly, there was a rapid, exceptionally large (the largest quarterly increase in over a decade), accumulation of inventories in the first quarter—not a good sign.

Businesses belatedly reacted. Manufacturers started reducing output in the second quarter. Gradually, capacity utilization rates eased back (from over 86 percent) and hours worked edged downward. Employment gains in manufacturing, which had been a mainstay of the job expansion in 1994, dwindled, as overall employment growth moderated.

[illegible] businesses' efforts to trim inventories, [illegible] progress has been slow because [illegible] have not increased spending. [illegible] continue to adjust to a larger [illegible] incomes going to debt payments. Higher credit-card and installment payments were only one factor. Homeowners, who had taken out adjustable-rate mortgages (ARMs) at attractive initial rates in the spring and summer of 1994, began experiencing sizable second-quarter increases in monthly mortgage payments, as ARM rates adjusted upward to today's interest rates.

Exports: supplying needed stimulus?

Until consumers feel comfortable with their debt load and begin to expand purchases, reducing inventories will be agonizingly slow. Manufacturers for domestic consumption will cut back output and new hires. Plant and equipment expenditures and manufacturing for export will only partially offset those reductions.



Source: *Federal Reserve Board*

Though the low dollar will help exports, this sector is going through a transition. Our two major export markets, Canada and Mexico, have their own economic woes. The unexciting outlook for growth in Europe and Japan (plus the trade dispute with Japan) will not raise demand for our goods much. Instead, exporters are shifting attention to increasing trade with other Asian and Latin American countries. Although beneficial to domestic production this year, expanding exports to these markets will take time and be much more important to American growth in the future.

Fed to the rescue?

Meanwhile, the economy, shackled with sluggish consumer spending and too much inventory, needs a jolt to shake it out of its lethargy. Congress, despite the promising action on the deficit in early May, is months away from passing both a 1996 budget and a longer-term deficit-reduction plan. Any tax or deficit cut in the 1996 budget will have no effect this year. Thus, only an immediate and significant easing of monetary policy can inject some get-up-and-go in the second half's economy.

As inflation fears diminished, long-term rates have fallen 100 basis points (a basis point is one hundredth of a percent) since the first of the year, to under 7 percent on-30 year treasury bonds. Short-term rates have not moved at all. Consequently, the spread between three-month treasury notes and 30-year treasuries has shrunk from between 200 and 225 basis points in January to between 100 to 125 basis points in late May (chart).

By flattening the yield curve, investors are betting that the Federal Reserve will recognize the weakness in economic growth and soon ease monetary policy significantly. If the Open Market Committee cuts the federal-funds rate at least 50 basis points in mid July, short-term rates will fall immediately, validating the investors' judgment. In lowering short-term rates, the Fed will clearly place the expansion of the domestic economy ahead of bolstering the dollar.

Mixed consequences for building

Declining interest rates will have a major impact on construction in the second half, primarily by encouraging home buying.

- *Residential:* House buyers stimulate purchases of other goods and services, which will lift production, employment, and incomes. As new jobs open up, more young adults will move out of their parents' homes into their own apartments, enlarging demand for multi-family buildings.
- *Retail:* Unfortunately, the pickup in home-buyer purchases will do no more than limit

the slippage in contracting for retail building. Major chains continue to consolidate, and the ongoing shift to discount stores is curbing demand for other kinds of stores and warehouses.

•*Industrial:* Plant and equipment expenditures remain the one bright spot in the economy. Domestic companies have been aggressive purchasers of equipment in their drive to lower production costs and improve productivity. After years of upgrading and expanding existing facilities, businesses are now spending more on new plants—a trend that will continue in the second half. If final sales or exports do not increase in coming months, executives will cut back on those outlays early next year.

•*Office:* Since 1992, contracting for office building has been crawling higher. Vacancy rates in more and more Midwest, Southeast, and Southwest markets are dropping into single digits. Regional banks in those areas are expanding their construction-loan offerings. Pension funds and life-insurance companies are examining applications and extending permanent mortgage commitments for properties with good locations and tenant rolls. Sustaining this momentum into next year and beyond, however, depends on stronger employment growth.

While there is much noise about federal deficit reduction, many states have already restored fiscal order. Moreover, they have been boosting outlays since 1993, particularly to support education and crime prevention, despite well-publicized budget-slashing pressures in some cities (Orange County, Calif., New York City). Overall, a growing school-age population and citizen alarm about crime will boost expenditures for these institutional building types—regardless of the federal budget debate—if the economy does not stumble badly later this year.

If the Federal Reserve loosens monetary policy soon, the economy's "soft landing" will be only a mild irritant for construction. If rates remain at current levels or rise, construction, especially housing, retail, and office, will have a very bumpy landing later this year and into early 1996. *Phillip E. Kidd*

Turf Wars

Engineers' Group Denies Architects' Unique Skills: Will it Play at Justice?

Last January, the National Society of Professional Engineers (NSPE) asked the Justice Department's antitrust division to investigate whether the architectural profession is conspiring "to deny the public the right to freely secure building-design services," and restraining "licensed engineers from providing building-design services to the public in violation of the federal antitrust laws." The issues the letter raises (RECORD, April 1995, page 9) aren't going away, even if the Justice Department declines the NSPE request. (The Department isn't saying whether there is an active investigation. It will file a complaint if it finds merit in NSPE's concerns.)

"If [NSPE] thinks the architecture profession is going to step back and say you can do whatever you want, they're wrong. We will not back off" —Chester Widom

NSPE will not say specifically the kinds of restraint of trade it accuses architects of engaging in, according to NSPE legal counsel Arthur E. Schwartz, "because it's under review by the Justice Department." However, there are several areas where NSPE has clashed with architects:

Who should design buildings?

NSPE challenges the principle promoted by AIA and the National Council of Architectural Registration Boards (NCARB) that licensed architects (and not engineers) should design and seal the documents for those types of structures and sites having "as their principal purpose human occupancy or habitation." Each state sets its own rules, but this NCARB language has been commonly adopted.

Even where the language delimiting practice is clearest and least ambiguous, overlaps occur, and these will be a consistent source of friction. Lev Zetlin Associates (LZA), a New York City engineering firm, complained to *Engineering News-Record* that a Connecticut official improperly required an architect to seal documents for an LZA-designed parking structure. The owner hired an architect to review the plans and stamp them. Reviewing plans prepared by others and stamping them is illegal practice in many areas, though. LZA's corporate structure (whether or not it employs architects) prevents it and similar engineer-dominated firms from practicing architecture in some states.

Differences in training, testing

The reason architects alone should be licensed to design buildings for human habitation in the view of both NCARB and AIA is that the education, training, and examination required of architects is specifically addressed to human needs as well as to the public health, welfare, and safety that are the minimum protections afforded by the licensing law. NCARB argues, in a recently revised paper titled, "Architecture As It Differs from Engineering," that "In almost every state, engineers are registered generically, with no distinction made among electrical, structural, mechanical, and civil engineers," and such non-building specialties as aeronautical, agricultural, ceramic, and electronic engineering.

Engineers' in-office training, argues NCARB, is narrowly focused by discipline and is "not governed by prescribed requirements," such as NCARB's Intern Development Program. Further, the Architect Registration Exam tests the ability to understand programmatic requirements and design a building that meets them. Examinees must also demonstrate that they can coordinate and integrate various technologies and systems, including those designed by engineers. "No comparable examination exists within any of the engineering disciplines," NCARB's paper states, "because the practice of engineering does not require such skills."NSPE's Schwartz argues that the state's interests don't lie in setting such high barriers for licensure. "Licensing

Continued on page 159

Volume Stays in the Plus Column—Barely

During the first three years of this expansion, the construction industry has witnessed a recovery that has been at times hesitant, but that has also shown remarkable consistency, with annual construction-volume gains in the 8- to 9-percent range. To keep the recovery going this year, the retreat in single-family housing must remain limited, and non-residential building must stay relatively unaffected by the economic slowdown now underway. The public-works sector might have supported continued recovery, but that is now much in doubt, given the deficit-reduction focus of the 104th Congress.

The steady pattern of the recovery thus far is attributable to a sector-by-sector unfolding: single-family housing led the way in 1992; it was joined by public works in 1993 and non-residential building in 1994. There's been no boom-and-bust behavior this time. But with single-family housing now slipping into decline, the steady growth for total construction will not be repeated in 1995 since single-family represents some 40 percent of total construction.

Three regions demonstrated fairly consistent expansion—the North Central, the South Atlantic, and the South Central. Last year the West joined, allowing four of five regions to post growth in the range of 9 to 12 percent. The Northeast's lackluster economy, and its retrenchment in public works, contributed to that region's 1-percent decline in 1994, in contrast to the gains achieved elsewhere. With slowing activity in much of the nation this year, the construction industry could well benefit from the Northeast joining the recovery in a more sustained fashion.

Falling rates cushion slower growth

For the overall economy, the soft-landing scenario presented in the 1995 Outlook [RECORD November 1994, pages 26-29] remains viable. The loss of momentum in 1995's first quarter will be followed by slower rates of growth in the second and third quarters, but not declines. For the year as a whole, the economy will expand at an estimated 2.7 percent clip, down from the 4.1 percent reported in 1994. Housing will [illegible] [illegible]'t due to weaker growth in employment [illegible] consumer durables (such as autos) [illegible] [illegible]at. The six- to nine-month lag

1995 National Estimates Dodge Construction Potentials June 1995

		1994 Actual	1995 Forecast	Percent Change 1995/44
Nonresidential Buildings				
Floor Area (in millions of sq. ft.)	Office Buildings	105	120	+14
	Stores and Shopping Centers	252	238	-6
	Other Commercial	242	270	+12
	Manufacturing Buildings	139	147	+6
	Total Commercial & Manufacturing	738	775	+5
	Educational,	162	175	+8
	Hospital & Health	72	68	-5
	Other Nonresidential Buildings	166	172	+4
	Total Institutional & Other	400	415	+4
	TOTAL NONRESIDENTIAL BUILDINGS	1,138	1,190	+5
Contract Value (millions of $)	Office Buildings	$13,623	$15,625	+15
	Stores and Shopping Centers	15,402	15,000	-3
	Other Commercial	11,683	13,400	+15
	Manufacturing Buildings	10,219	10,800	+6
	Total Commercial & Manufacturing	$50,927	$54,825	+8
	Educational	$19,500	$21,200	+9
	Hospital and Health	10,449	10,350	-1
	Other Nonresidential Buildings	19,942	20,475	+5
	Total Institutional & Other	$49,421	52,025	+5
	TOTAL NONRESIDENTIAL BUILDINGS	$100,348	$106,850	+6
Residential Buildings				
Dwelling Units* (thous. of units)	Single-Family Houses	1,062	960	-10
	Multifamily Housing	257	270	+5
	Total Residential Buildings	1,319	1,230	-7
Floor Area (millions of sq. ft.)	Single-Family Houses	1,997	1,790	-10
	Multifamily Housing	262	275	5
	Total Residential Buildings	2,259	2,065	-9
Contract Value (millions of $)	Single-Family Houses	$118,517	111,200	-6
	Multifamily Housing	14,749	16,150	+9
	Total Residential Buildings	$133,266	127,350	-4
Nonbuilding Construction				
Contract Value (millions of $)	Transportation Construction	$38,972	$40,325	+3
	Environmental Construction	18,014	18,275	+1
	Total Public Works	$56,986	$58,600	+3
	Utilities	$4,212	$4,400	+4
	TOTAL NONBUILDING CONSTRUCTION	$61,198	$63,000	+3
All Construction				
Contract Value (millions of $)	**Total Construction**	$294,812	$297,200	+1
	Dodge Index (1987=100)	114	115	

*F.W. Dodge basis

typically required for monetary policy to have an effect means that the Federal Reserve's seven rounds of rate hikes that ended last February will have their greatest impact midway through this year.

Fixed mortgage rates, having already fallen from the 9-percent levels at the start of 1995 to below 8 percent, will continue to move downward as the year proceeds. The Federal Reserve will keep short-term interest rates at current levels through summer; there is some chance of easing by year's end. Inflation may spike upward due to rising commodity prices and higher-cost imports, but the economic slowdown and global competition should keep price increases in check. Growth in exports will be one of the pluses for 1995, helped by the weak dollar, yet hurt by the fiscal turmoil in Mexico.

The greater availability of bank credit was one of the elements that supported expansion last year. The 1989 to 1992 credit crunch acted like an economic head wind, slowing the expansion. Now banks are aggressively seeking ways to increase loan portfolios and revenues, which creates the equivalent of an economic tail wind. Easier credit should continue to support expansion in 1995, though the Treasury Department's Office of the Controller announced in April that it would investigate whether the nation's largest banks are taking excessive risks. If banks rein in lending, there could be another credit crunch, but one that would be much milder, and its impact probably won't be felt in construction until 1996.

Shrinking government spending

The push in the 104th Congress for a smaller federal-government role has become a factor affecting the construction industry, although the extent remains unclear. Fewer regulations and tax cuts support the business community and may well contribute to the recovery of commercial building. The public-works sector, though, will bear the brunt as Congress tries to get the budget on a glide path toward balance by 2002.

Legislation restricting unfunded federal mandates to local government, a provision of the Contract With America, achieved quick passage, but the near-term impact on construction will be minimal because the bill does not apply to existing mandates. The extent of program cuts for deficit reduction (notwithstanding the defeat of the balanced-budget amendment to the Constitution) is the key element affecting the public-works sector. Deficit reduction will not only shape spending decisions for 1996 and beyond, it will affect the fiscal 1995 budget since both houses of Congress have passed recision packages. A final scope has not been agreed on, and President Clinton has threatened to veto it, expressing concern about the substantial cut in the revolving-loan fund for water projects, among other issues.

Construction volume can grow if single-family housing slips only minimally and non-residential building remains little affected by 1995's economic slowdown.

The Safe Drinking Water Act and reauthorization of the Superfund waste cleanup program have yet to be seriously considered by Congress. These are big construction programs (though not building-construction programs) that are hung up not just because of their cost, but because Democrats and Republicans cannot agree on whether to ease environmental regulations. Similar battles may bottleneck building-related bills, including those for courthouse construction, public housing, and aid to transit.

A critical factor underlying this Dodge/Sweet's forecast is the assumption that states and local governments have the ability to take up the slack from cuts in aid driven by federal deficit reduction. Overall the fiscal status of state and local government going into 1995 is good. According to the National Conference of State Legislatures, state reserves increased from 2.3 percent of general-fund budgets in fiscal 1993 to 3.6 percent in fiscal 1994. A recent survey of city fiscal officials by the National League of Cities showed more than half of respondents felt "better able to meet fiscal needs" in 1994 than in 1993. A stronger budget position, of course, makes it easier to issue bonds for construction projects, so the near term offers the potential for more local-government building.

A 1995 decline for housing

Single-family housing lost momentum in 1994, but the slowdown was relatively mild. The annual volume (1.062 million units) was still 3 percent over the previous year. Amidst the slowing economy, housing declined more steeply in the early months of 1995. The interest-rate hikes of 1994 hit adjustable-rate holders in 1995. Early evidence shows that the share of mortgage activity coming from adjustables has receded from the 50-percent level of late 1994. With fixed mortgage rates dropping below 8 percent this spring, the volume of sales for new and existing single-family houses should begin to stabilize by summer. It will take several months for housing-start activity to pick up, however, since the inventory of unsold new homes has increased from five to seven months. In 1995, single-family housing will register its first decline overall since 1990, falling 10 percent to 960,000 units. Still, this is a fairly modest retreat by the standards of previous downturns. Slower employment growth will erode some of the near-term demand for housing, but the effect should be minimal assuming that unemployment remains under 6 percent.

Holding pattern for income properties

The sustained expansion of 1994 provided a foundation for strong growth of income properties (commercial building and multi-family housing). After bottoming out in 1992 at 634 million sq ft, the income-property sector had a subdued recovery in 1993, rising just 6 percent.

Last year saw a breakout, as contracting jumped 28 percent to 861 million sq ft. Some loss of momentum will occur in 1995 and 1996, but a sharp downturn is unlikely. Contracting is projected to rise an additional 5 percent this year, then flatten in 1996. Construction of most income-property types remains lackluster, at least relative to 1980s' levels. Most types still have considerable upside potential at least on a percentage basis, and the slower economic growth for this year and next will not push these categories into decline; at worst they should experience a holding pattern.

Financial institutions anxious to make loans will support this category, especially as vacancy rates continue to recede and rents start to rise. (In 1994, the *office*-vacancy rate slipped below 16 percent, which represents discernible progress in working off the glut of office space.)

The public-works sector might have supported continued recovery, but that is now much in doubt, given the deficit-reduction focus of the 104th Congress.

Till recently, *store* construction has been the exception to the income-groups' lackluster growth. It has risen to healthy levels of activity. This maverick behavior will continue in the near term: store construction will be the one income-property category to turn down in 1995 to 1996. Responding to ebbing new-house construction and slumping retail sales, store construction will slip from 252 million sq ft in 1994 to 238 million sq ft in 1995, with a further drop in 1996. The decline should then end, as an expanding housing sector renews support, along with the later stage of the retail trend toward "super centers"—discount general merchandise and supermarkets accommodated under one roof.

Strength in manufacturing

The recovery for construction of industrial plants gathered steam in 1994 with a 26 percent gain to 139 million sq ft, the highest level of activity since 1989. With capacity utilization rates climbing to 85 percent at the [illegible] near-term expansion for this [illegible] assured. An assist from expanding export markets and the weak dollar should enable contracting to reach 147 million sq ft this year—close to the level of the mid-1980s plateau.

Upward trend for institutional work

Positive demographics (growth in both the student and elderly populations) offer support for this sector. The strengthened fiscal status of state and local governments is also a near-term plus.

The market for institutional buildings has been much steadier than other sectors. During 1992 and 1993, though, construction in this sector took a breather, experiencing its first declines in a decade. It rebounded 5 percent in 1994, putting the upward trend back on track.

Prison construction, which benefits from virtually certain funding, continues to boost this sector. In 1993, the number of prison inmates climbed above the one-million mark, with state prisons operating at close to 130 percent capacity. The federal crime bill passed last August authorizes $7.9 billion in state grants for prisons and boot camps, an amount that the House of Representatives augmented to $10.5 billion, pursuant to the Contract with America. Only a small amount of this funding will become available in 1995, but substantial increases will take place toward the end of the decade—when state and local governments will be dealing with federal-spending cutbacks in other areas. *Health-care* building continues to trend downward as cost-containment pressures spur hospital mergers and shortened patient stays reduce the need for beds.

Overall, though, Dodge/Sweet's projects a continued moderate expansion for institutional types in 1995, reaching 410 million sq ft.

Public works: the wild card

Depending as it does on the fate of budget-balancing efforts, the public-works sector is the most uncertain. The funding curve already in place would have flattened support for highways anyway, given appropriations currently in place. There is a threat to reduce federal support even more, but the impact on construction may be limited. According to the Highway Users Federation, states receive just 30 percent of their highway funding from the federal government. The "wild card" for highway construction is the possible removal of the Highway Trust Fund from the official federal budget, which means Congress couldn't dip into it to balance the budget.

Updates to the Clean Water Act, the Safe Drinking Water Act, and Superfund reauthorization should have boosted environmental public works. Only clean water has a better-than-even chance of passing in 1995; the other bills may face substantial (and delaying) revisions. This forecast optimistically assumes that state and local governments will pick up the funding gap in the current year, so that no current-dollar decline is anticipated. From 1994's 7-percent gain, public works will essentially be flat in current dollars at a 3-percent gain.

Avoiding a decline

The sum of the activity by construction types results in an adjusted forecast construction-volume gain of 1 percent (versus 3 percent in the last report). For the construction industry to avoid slipping into decline, it is necessary that the overall economy suffer no worse than a soft landing, which would allow continued expansion of non-residential building and a limited retreat for single-family housing. Public works must also continue to enjoy a measure of federal support. If deep cuts the House made in these programs are sustained in the Senate, public works will become a noticeable drag on construction growth.

A couple more years of gradual expansion is far from assured, but the anticipated upturn for housing and the continued improvement for commercial building in 1997 could make it possible if other sectors don't fall too far into the negative category.

Robert Murray

995 Regional Estimates

Dodge Construction Potentials

June 1995

ontract Value millions of dollars)	1994 Actual	1995 Forecast	Percent Change 1995/94		1994 Actual	1995 Forecast	Percent Change 1995/94
ortheast T, ME, MA, NH, NJ, NY, PA, RI, VT							
onresidential Buildings				**Residential Buildings**			
ommercial and Manufacturing	$7,442	$8,050	+8	Single-Family Houses	$12,580	$12,500	-1
nstitutional and Other	10,001	9,350	-7	Multifamily Housing	2,048	2,350	+15
otal	$17,443	$17,400	0	**Total**	$14,628	$14,850	+2
onbuilding Construction	$10,232	$10,750	+5	**TOTAL CONSTRUCTION**	$42,303	$43,000	+2
orth Central L, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
onresidential Buildings				**Residential Buildings**			
ommercial and Manufacturing	$12,408	$12,900	+4	Single-Family Houses	$25,995	$24,000	-8
nstitutional and Other	10,748	11,600	+8	Multifamily Housing	3,491	3,600	+3
otal	$23,156	$24,500	+6	**Total**	$29,486	$27,600	-6
onbuilding Construction	$14,385	$14,600	+1	**TOTAL CONSTRUCTION**	$67,027	$66,700	0
outh Atlantic E, DC, FL, GA, MD, NC, SC, VA, WV							
onresidential Buildings				**Residential Buildings**			
ommercial and Manufacturing	9,769	$11,250	+15	Single-Family Houses	$29,233	$28,325	-3
nstitutional and Other	10,139	10,850	+7	Multifamily Housing	3,383	3,700	+9
otal	$19,908	$22,100	+11	**Total**	$32,616	$32,025	-2
onbuilding Construction	$11,906	$11,925	+0	**TOTAL CONSTRUCTION**	$64,430	$66,050	+3
outh Central L, AR, KY, LA, MS, OK, TN, TX)							
onresidential Buildings				**Residential Buildings**			
ommercial and Manufacturing	$8,670	$9,625	+11	Single-Family Houses	$19,387	$18,050	-7
nstitutional and Other	7,833	78,525	+9	Multifamily Housing	2,177	2,250	+3
otal	$16,503	$18,150	+10	**Total**	$21,564	$20,300	-6
onbuilding Construction	$9,848	$10,150	+3	**TOTAL CONSTRUCTION**	$47,915	$48,600	+1
est K, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
onresidential Buildings				**Residential Buildings**			
ommercial and Manufacturing	$12,638	$13,000	+3	Singl- Family Houses	$31,322	$28,325	-10
nstitutional and Other	10,700	11,700	+9	Multifamily Housing	3,650	4,250	+16
otal	$23,338	$24,700	+6	**Total**	$34,972	$32,575	-7
onbuilding Construction	$14,827	$15,575	+5	**TOTAL CONSTRUCTION**	$73,137	$72,850	0

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obert Murray, vice president, economic affairs.

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Why Architecture Still Fails to Attract Minorities

By Mubarak S. Dahir

A survey of 350 architects from around the country suggests that architecture continues to be a difficult field if you're not white. According to Kathryn H. Anthony, professor at the University of Illinois at Urbana-Champaign, 35 percent of professional architects of all races reported knowing of cases of racial discrimination in the office. In addition, 55 percent of people color reported experiencing a "glass ceiling" to advancement. While the figures may astound white architects, black architects, particularly, say they find racial discrimination of all kinds a matter of course.

On his first job after graduating in 1979 from the school of architecture at Southern University in Louisiana, Darrel J. Williams repeatedly saw opportunities for creativity and advancement being offered only to his white counterparts. So he changed firms. With the same thing happening at his new job, he moved onto yet a third company. He ended up trying five different architecture firms in five years. "I was really on the verge of leaving the profession," says Williams, a 38-year-old African American. "I was so frustrated, unhappy, and uncomfortable. I felt my work was not being appreciated because of the color of my skin." It wasn't until Williams landed a position with the black-owned Gantt Huberman Architects in Charlotte, N. C., that his experiences changed.

> *"Architecture is a 'star' profession, and we need a national star to break the ice for us in architecture, like Spike Lee did in the movie industry."—Michael Rogers*

In June, the Supreme Court significantly limited minority set-asides. Because it was a construction case, the decision dealt a significant blow to affirmative action in the design professions. Even with affirmative action, it's worth considering why the profession of architecture has remained nearly impervious to many non-whites. Should the profession's makeup diverge so greatly from the nation's?

"Architecture is one of the last bastions of white-boy clubbiness," says Jack Travis of Jack Travis Architect in Manhattan. Travis's harsh judgment is not contradicted by statistics. As of last January, blacks still make up only 1.1 percent of AIA members. While other minorities and women are under-represented in the field [RECORD, November 1994, page 25], the gap for blacks—one twelfth their percentage in the general population—is particularly large.

Are African Americans a unique case?

Out of approximately 100,000 professional architects in the country there are only 1,064 blacks. "There's no doubt about it," says Williams, of Gantt Huberman, "The biggest problem we face is the age-old problem of racism." In a professional environment such as architecture, racism is most often subtle, he says. Blacks are overlooked for advancement, they're assigned to the technical parts of a job rather than the creative parts, and they find no mentors to help them succeed within a company.

Bradford Grant, an associate professor of architecture at California Polytechnic State University in San Luis Obispo, Calif., says many black students drop out of architecture programs because they feel isolated both from the student body and the staff. Grant says there are approximately 120 black architecture professors for about 100 architecture schools in the country—about one black professor per program. In reality, he says many programs do not even have a single black professor because African American teachers tend to be concentrated at schools on either coast, and in large cities, rather than evenly dispersed throughout the country. Nationwide, all minorities combined make up only 9 percent of architecture faculty.

The lack of advancement opportunities has lead to a racially divided workplace, says Dennis Alan Mann, a professor of architecture at the University of Cincinnati. Through a grant from the American Institute of Architects, Mann and Grant, of California Polytechnic, are currently updating a 1991 directory of licensed African American architects in the United States. Grant and Mann surveyed the black architects on affirmative action and business practices. Though the results of the survey won't be final until fall, Mann says the data shows that "blacks tend not to work in majority firms, and a very high percentage of blacks own their own firms. When you look where people work, the profession is segregated. In non-black firms, African American architects feel strongly that they're just not going to be given the same opportunities."

Williams reports that even his black-owned firm faces barriers in seeking to widen its client base. He says his company—which specializes in academic architecture, such as libraries, dormitories, labs, and classroom buildings and has been in business 20 years—still wins "the majority of our large projects in the private sector from black university campuses." At other schools, it's an uphill fight, he says.

Lack of visibility deters recruitment

Increasingly, African American architects have concluded that traditional affirmative action isn't enough [story opposite]. Several cite the invisibility of blacks. "Young African Americans seeking role models don't easily find black architects," says Philip G. Freelon of The Freelon Group, Inc., in Morrisville, N. C. "When young people are looking for a profession, it is essential that they see faces that look like their own. If they don't, that sends its own message about how they're going to fit into that profession."

Emmanuel Kelly of Kelly/Maiello Inc., Architects & Planners, in Philadelphia, says he never would have dreamed of studying architecture if his mother hadn't worked for an architect when he was a kid growing up in West Philadelphia. "I thought if you went into

Mubarak S. Dahir is a freelance writer based in [illegible], N. J.

t you were going to be a starving artist,"
ne recalls. "Well, I came from a low-income
family, and more poverty just didn't make
sense." However, when Kelly one day went
with his mother to her employer's house, he
noticed the architect had a nice home in a
wealthy suburb. "That was the first time I
realized this was a viable option."

Making architectural culture relevant

Visibility is key because architecture is not a
profession that has been an intrinsic part of
black culture as it has been for other minori-
ies. J. Bruce Kamino, principal architect at
Development One, Inc. Architects in Orange
County, Calif., says that in the Hispanic com-
nunity there is a long and respected
radition of architecture. "In Hispanic
culture, architecture is seen as very influen-
ial. I think the problem in the Hispanic
community is that there are a lot more people
who would like to be architects than are let
n." Jack Travis believes this cultural barrier
s one of the strongest reasons so few blacks
are in architecture. "If you're not in a major
city, the role of architecture in the black com-
nunity is nil," he says. And even in major
cities, "there is almost no basis to practice
African architecture in the neighborhoods. In
other professions, like law and medicine, you
can practice in our own community. In archi-
ecture, it's harder."

To combat this problem, black architects are
making themselves available in mentoring
programs at all levels of education. "I go to
the schools, from fourth grade to college, and
talk about architecture," says Travis.

Michael Rogers, president of the National
Organization of Minority Architects, sug-
gests what might be key to attracting more
African Americans to the field. "Architecture
is a 'star' profession, and we need a national
star to break the ice for us in architecture,
like Spike Lee did in the movie industry." He
says the reason no such "stars" currently
exist isn't because black architects aren't
capable of creative design, but because they
are rarely given the opportunity to use it. ■

AIA's 2nd National Diversity Conference,
August 11-13 in San Francisco, will offer help
in diversifying practice, as well as job and
networking opportunities (202/626-7482).

Affirmative Action: Boon or Bust?

The Supreme Court (in Adarand v. Pena) buoyed those who have argued that affirmative action gives women and minorities an unfair advantage, and lowers standards. The decision may require changes in existing programs, but the low minority participation in architecture may itself prove justification for maintaining affirmative action.

What affirmative action has accomplished

By giving minorities the chance to build up their portfolios, says Darrell Williams, they become qualified to compete without set-asides. "There is no doubt that affirmative action has opened a lot of doors," says Emmanuel Kelly. Without such programs, "our company wouldn't have had the opportunity to participate in a lot of projects."

Why hasn't it done more?

Jack Travis, of Jack Travis Architect in Manhattan, argues that "affirmative action has been a major failure. It hasn't accomplished its primary goal of moving black architects beyond federal dependency." Frequently, "the minority firm gets stuck doing toilets and garages, not the design work," he complains. "So the question is, How much are you really learning? How much experience are you really getting?" Travis fears that some minority-owned companies become both acclimated to this kind of work and complacent with it, and stop pursuing larger or more creative projects. "Through affirmative action we've become slaves in another way without a lot of people realizing it," he worries.

"There is no doubt that a very large percentage of business for African American architects comes from government projects," says Grant, of California Polytechnic, after a review of his and Mann's recent research. In many black architecture firms, he adds, such business totals 50 percent or more of the company's contracts. Grant says he does not have information to show how those figures compare to the amount of government contract work done by white-owned firms.

Does it create a stigmatized, dependent class of firms?

The statistics can be viewed as both a victory for and an indictment of affirmative action, says Grant. "On the one hand, it's strong evidence that affirmative action has helped quite a few blacks. On the other hand, it shows affirmative action hasn't fulfilled its promise of helping minorities move into the [corporate and commercial] mainstream."

"If a company becomes over-reliant on affirmative action, that's not good either," warns Philip Freelon. "We've got to avoid the crutch syndrome, especially on programs that may not be around a year from now." He says his firm has prospered while it has "intentionally maintained a healthy balance" of government and private-sector work. However, most black architects currently see affirmative action as a necessary evil. "There are definitely some minority businesses that won't be around in two years if affirmative action folds," says Michael Rogers of NOMA. "It's that important." Even critic Jack Travis argues against eliminating the programs. "The tragedy is that if affirmative action is eliminated just like that, it will hurt black architects because we haven't yet changed peoples' attitudes." *M.D.*

Bargain-Basement CAD

By Steven S. Ross

The three packages we review this month have several things in common. First, they are cheap—all under $200. Second, they are good. Third, they come with minimal printed documentation. Their use is supposed to be near-intuitive; they all run under Windows, and you're all supposed to know how Windows works by now. Needless to say, if you expect a dealer to install these for you, you're out of luck.

There's more where these came from, too. Capable software is getting cheaper, in part because it's easier to support, in part because the universe of buyers has expanded.

This doesn't mean that large offices should do their CAD shopping at Egghead or Toys 'R Us. But small offices might spend some time there—and even large practices may find useful utilities on the shelf.

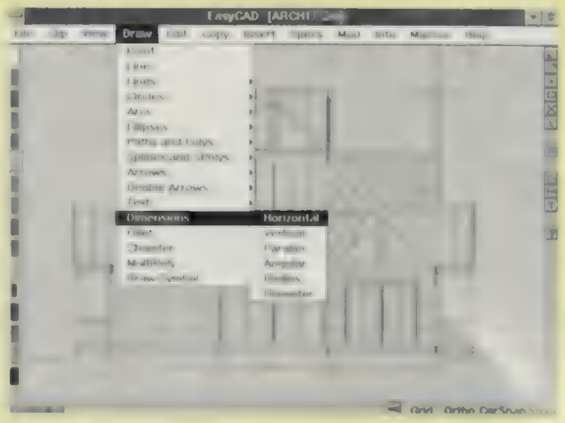
EasyCAD for Windows

Vendor:
Evolution Computing, 437 South 48th St., Suite 106, Tempe, AZ 85281, 602/967-8633, fax 602/968-4325, 800/874-4028.

Equipment required: Any computer capable of running Windows 3.1 or higher. Math coprocessor recommended.

Price: $199, upgrade $79.

Evolution Computing has always distinguished itself with nimble software. Its FastCAD/EasyCAD line has been—well—fast. This 2D product, Evolution's first for Windows, is also feature-laden. It doesn't have all the Windows niceties (most importantly, no scroll bars), and the menu order, as supplied, is not exactly Microsoft style. But you do get clipboard and TrueType font support, and upward compatibility with FastCAD and EasyCAD. (Until now, older versions of FastCAD have been the basis for EasyCAD; this one is all new.) You also get DXF transfer to and from AutoCAD and other CAD packages. The DXF lacks some basic controls over blocks, but the translations we tried all seemed to work well.



At first, we thought the speed was due to some kind of cheating—perhaps restricting entities to integer sizes. But this is a full floating-point product with unlimited layering and a large set of possible CAD entities.

You can also play around with menus, rewriting them and changing their order, and even assigning macro commands to new menu items and function keys. This makes the product a good production-drafting tool, at least for 2D. If you can live with DXF file exchange between EasyCAD and what you may be using now, you can set up the product to mimic other packages' basic commands.

The drawing set is solid. All the conventional items you would expect are there—layers, groups, right- left- center-snaps and clipping, splines, Beziers, tweaking of entities already placed. Dimensioning is associative—dimensions update as you edit the entities they are attached to. Fills usually work associatively.

You get one view on screen at a time, but views are named, and you can jump from one to another quickly. This package is far more than a toy, but carries a toy-like price.

Manuals: One 28-page paperback (we're not kidding) and on-line help.
Ease-of-use: If you jump around a drawing a lot, you won't like EasyCAD—there are no scroll bars or multiple windows. Otherwise, its speed makes it a joy to use.
Error-trapping: Basic Windows; you get warned before you do anything that loses data. There's also an undo/redo command.
300 *on Reader Service Card*

The EasyCAD [illegible] Windows [illegible]

KPT Convolvers for Windows

Vendor: HSC Software, 6303 Carpinteria Ave., Carpinteria CA 93013, 805/566-6200, fax 805/566-6385; KPTSupport (America Online); go kptsupport (CompuServe); kptsupport@aol.com (Internet).

Equipment required: Computer capable of running Windows 3.1, Windows for Workgroups, or Windows NT. There's also a Macintosh version due; it requires System 7. Requires a "host" drawing program (not CAD) capable of taking plug-in filters, such as Adobe Photoshop, Fractal Design Painter, Micrografx Picture Publisher. Comes with "limited edition" version of Picture Publisher.

Price: $199.

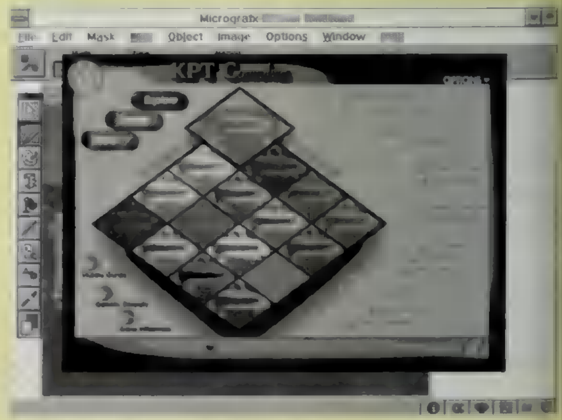
We reviewed Kai's Power Tools, the innovative filters for pixel-based artwork, earlier this year. Now, there's a version that allows you to create your own filters.

Convolver's interface takes some getting used to. Although it runs inside Macintosh or Windows applications, it presents a different face, as the illustrations show. There are three modes:

Explore mode puts 15 random filters, or "mutation kernels" of your image up on the screen. You can select one as a starting point for your own customization, or you can ask the program to generate more.

Design mode allows you to put mutations in

Convolver's Explore mode tiles different color effects over the original image—in this case, a doorway in photo of historic home.



Three Windows packages for CAD you might want o take a look at. They're all under $200 and they're all good. But don't expect dealer installation!

order of increasing sharpness, brightness, aturation, and so forth on the grid. You get o choose any two effects, and the display hows the grid as the two effects increase, in ombination, along two axes.

Tweak mode allows you to control each nderlying parameter and view the results in eal time as you do so. There are several nask and sharpening controls under Tweak s well.

What you won't find in Convolver are sliders nd preset controls; each image is different, nd even preset controls work differently in lifferent images. Besides, the host software hat you plug Convolver into will have such basic controls in its menu.

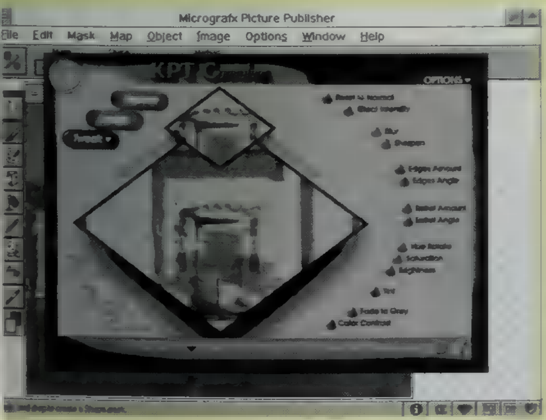
After you find an effect you like, you can pply it to the entire image, or select another ection of the image (rather than the center, which is the default) to view the effect in. When you find an effect you particularly like, ou can save it.

Manual: Spiral-bound, 60 pages. Describes basic effects and controls.

Ease-of-use: slow on an 80486-33; interface akes a few hours to get used to.

Error-trapping: Good; the program seems table, and nothing happens to the original mage without a lot of warning.
301 *on Reader Service Card*

Result of changing relief angle in Tweak mode.


Micrografx Picture Publisher
File Edit Mask Map Object Image Options Window Help
KPT Convolver
OPTIONS

TracTrix for Desktop

Vendor: Trix Systems, Inc., 68 Smith St., Chelmsford, MA 01824, 508/256-4445, 800/326-4443, fax 508/256-9593; traxsystem@aol.com (e-mail).

Equipment required: Windows 3.1 or higher; scanner strongly recommended.

Price: Roughly $130 for basic stand-alone version; $950 for AutoCAD (inside AutoCAD 12 or 13), or as stand-alone (no limit on image size); DOS, Windows, NT, Macintosh, or Silicon Graphics versions; $550 for DXF/IGES version for Windows or NT.

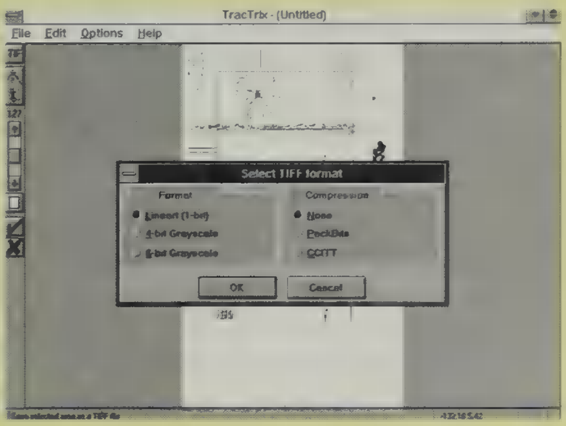
If you need a quick way to scan small sections of drawings into CAD, TracTrix may be for you. It works with desktop scanners (or TIF images that have been scanned ahead of time); output is in DXF format. We tested the program on several 8.5- by 11-in. (A-size) laser-printed plan views and elevations. We simulated the "noise" of dots in a blueprint by crinkling the printouts, then smoothing them before inserting into an HP ScanJet IIc flatbed scanner.

It works well. The DXFs we got from the scan were not too different from the DXFs that were used to print the file. It also exports to Micrografx DRW, EPS (PostScript), HPGL, and EPS with a TIF header (to make the file viewable in desktop-publishing software and word processors).

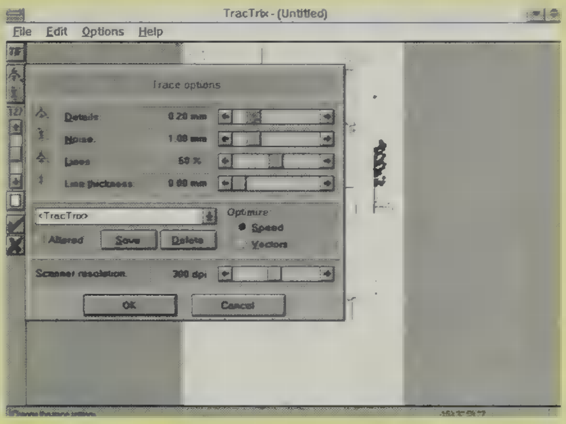
You can also adjust for scanning conditions, drawing contrast, and noise. You can detect the edges or centerpoints of lines and touch up the results, or even edit curves—great for scanning fonts and modifying them.

If your needs are not high volume, the version we tested works particularly well with TWAIN-aware scanners. Once you tell it that the image source will be your scanner, TracTrix automatically invokes the scanner when you invoke "New" on the file menu.

Manual: One spiral-bound 108-page manual.
Ease-of-use: Terrific.
Error-trapping: Good; there's an undo command.
302 *on Reader Service Card*



Format: ● Lineart (1-bit) ○ 4-bit Grayscale ○ 8-bit Grayscale
Compression: ● None ○ PackBits ○ CCITT



Details: 0.20 mm
Noise: 1.00 mm
Lines: 50 %
Line thickness: 0.00 mm
<TracTrix>
Optimize: ● Speed ○ Vectors
Scanner resolution: 300 dpi

Top: Scanning a plan from within TracTrix. We've selected a section of the entire image.

Above: Setting scanning parameters—to handle noise, filter specific line widths, or to maximize speed and accuracy.

Carpets Solve Site-Specific Problems

303. Closed loop. Knowing that carpeting "uglies out" long before significant signs of wear appear, and that reuse is more resource-efficient than recycling, Milliken developed Earthwise Ennovations (E^2), a proprietary, cradle-to-cradle process that cleans, textures, and restyles previously used modular carpeting for reuse (photos show an actual before- and-after). Carpeting gets new colors, new patterns, and a new warranty at about half the cost of buying replacement floor covering. Milliken Carpet, Commercial Markets, LaGrange, Ga.

304. Glue free. A new thermoset backing is said to offer excellent dimensional stability, even in large floor areas with varying levels of use and heavy rolling traffic. A peel-and-stick installation option minimizes downtime. Patcraft Commercial, Dalton, Ga.

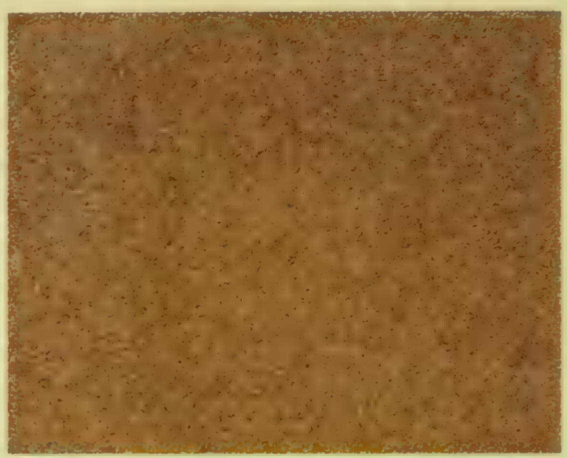
305. Grand scale. Collaboration between client, architects TRA, interior designers Runyan/Unter, and the mill created a unique carpet for the Denver International Airport. The backing system was specified to accept the extremely high traffic anticipated over the 60,000 sq yds of carpet, and all components were custom: the colors, the three-dimensional effect created by superimposing cut pile on loop pile, and the coordinating borders. Lees Commercial, Greensboro, N.C.

306. Special. Designer Christine Van Der Hurd creates floorcoverings totally different in scale and application from Denver's huge airport. All-wool and American made, her rugs incorporate fantasy in cut-pile patterns, edge shape, and custom colorations, offered in constructions and sizes suitable for residential, hospitality, and retail use for a range of budgets. Van Der Hurd, New York City.

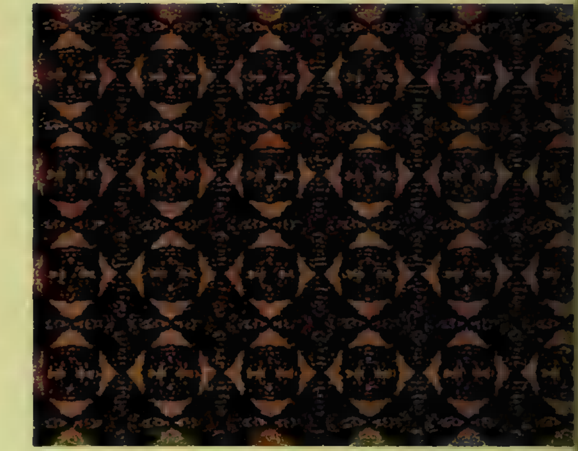
307. Starting over. Unique (so far) in the industry: all carpeting components are made of easy-to-recycle materials, such as Zeftron nylon. Western Solutions, Santa Ana, Calif.

308. No seep. Vinyl-backed carpets permit chemical-seam bonding, creating a mold-proof moisture barrier and facilitating wet clean-ups—a plus in healthcare and food-service settings. Lowe's Carpet Corp., Chatsworth, Ga.

309. Resistive. Made with Antron Lumena solution-dyed nylon, Regiment loop carpeting has a woven-look texture and is guaranteed to retain its new appearance even in heavy-traffic environments. Masland Carpets Inc., Mobile, Ala. ■



303a



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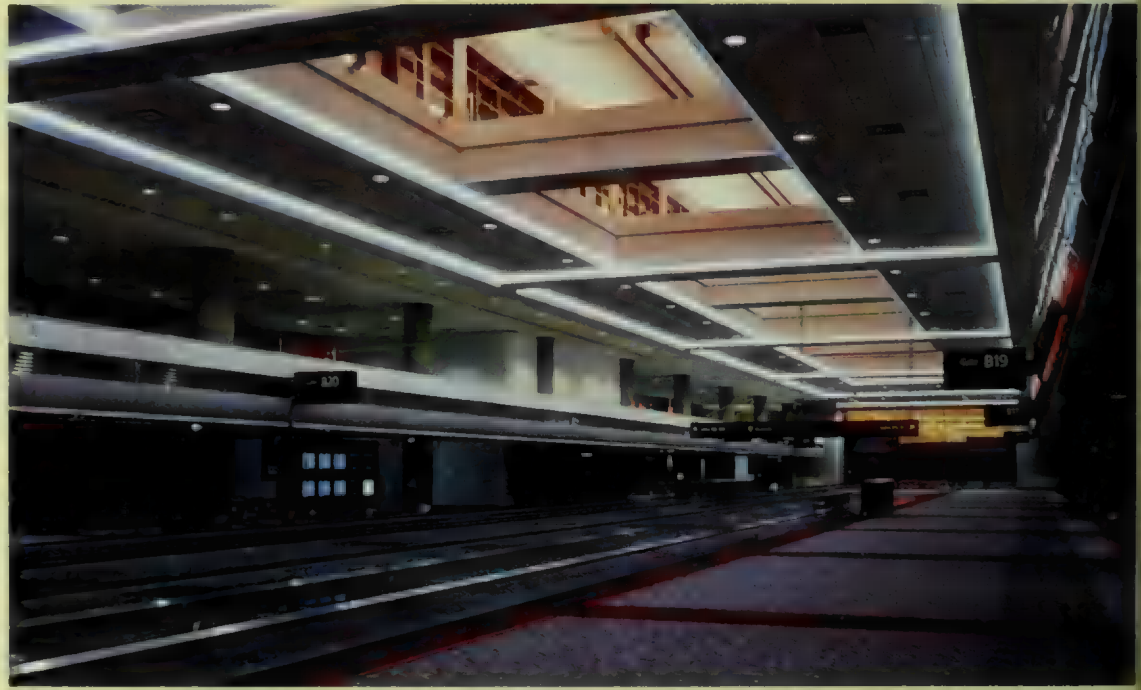

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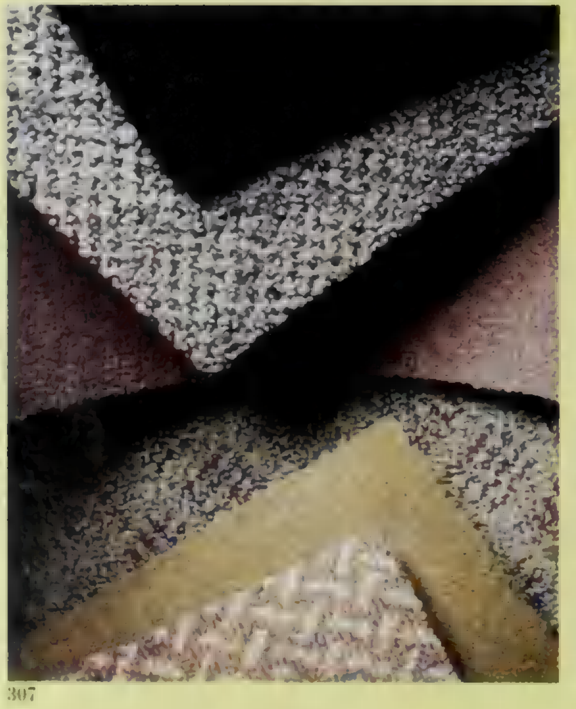

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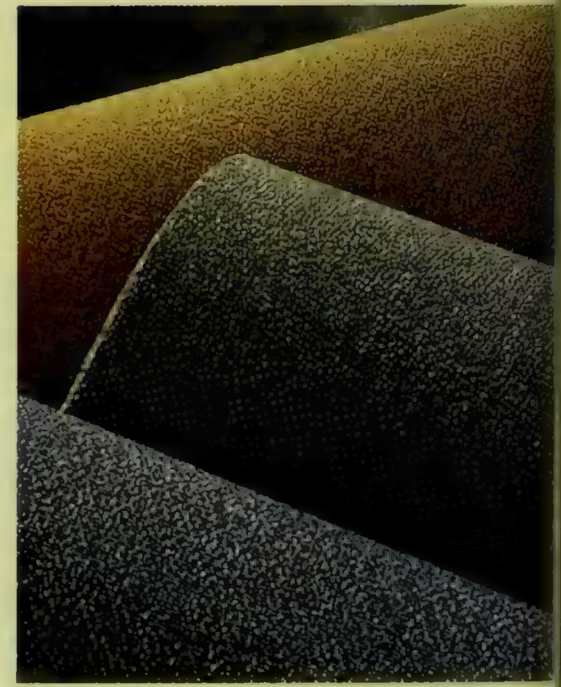


308

Carpet Specification: Mind the Green

04

06

09

Over and above the performance and appearance characteristics of carpet as a floor covering—foot comfort, noise control, pattern, color, and texture—there are environmental and maintenance concerns that a specifier should address:

- The impact on indoor-air quality of the carpet itself, of its backing, and of its installation method.
- The correct maintenance procedures necessary to insure the benign performance of the carpeting over its useful life.
- The true embodied energy represented by the carpet material, the anticipated life-cycle performance of the installation, and the environmental cost of used-carpet disposal.

Carpet and IAQ: short form

Pushed by the widely publicized episode at the Environmental Protection Agency (EPA) headquarters in 1988, where "new carpet smell" was held responsible by some for miscellaneous health complaints, the Carpet and Rug Institute (CRI), Dalton, Ga., created an indoor-air-quality testing program for products made by member mills. Using environmental-chamber technology developed by the EPA, the rug labeling program establishes benchmark measurements of four types of known irritants and certifies maximum emission levels based on random-batch testing four times a year. Carpets that pass these tests are labeled. (The long-term health effects of even the minimal emissions of modern carpeting are not yet known.) Compliance with the program can be checked by requesting material safety data sheets (MSDS) for each part of a carpet installation: adhesive, backing/cushion, and carpeting. Insist that carpet be effectively ventilated for several days before it is installed in an occupied space.

The most problematic component of a carpet installation had been the volatile organic compounds (VOCs) emitted by the adhesives used in direct-glue installations. Adhesive systems developed since 1991 to meet southern California air-quality regulations offer very low or even zero VOC levels, with continually improving adhesive performance. Self-adhesive peel-and-stick systems, and hook and loop backings that create a mechanical bond between carpet and special tack-down tapes, have no offgassing components. Similarly, carpet cushion and backings are available in low-VOC formulations.

Maintenance—keep it clean

Research has demonstrated carpet's ability to capture airborne particulates as they settle into the fibers, removing them temporarily from the air we breathe. But this trapped dirt must be extracted on a regular basis by vacuuming methods that do not redisperse the particles. A high-efficiency (HEPA-type) vacuum-cleaner bag is recommended, and there are dry carpet-cleaning agents, such as Milliken's MilliCare, that are said to adsorb pollutants and "hold" them for removal by standard vacuum equipment. Maintenance staff should treat stains promptly, and use low-VOC and minimum-moisture methods.

True costs

The relatively low first cost of carpeting (compared to terrazzo or other more durable floorings) contrasts with its high embodied energy: they're not making any more oil. So carpet specification must consider the recycled content of the carpet itself, its recyclability, and even the vendor's ability to renew and restyle carpeting rather than replace it. Fiber sources DuPont and BASF are leading participants in recycling some of the tons of carpet sent to landfills each year.—*J.F.B.*

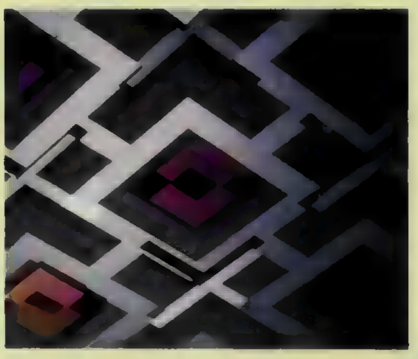
© Courtesy Collins & Aikman Floorcoverings

Vinyl-backed carpet and tile being shredded during recycling, en route to becoming highway sound barriers.

Product Briefs

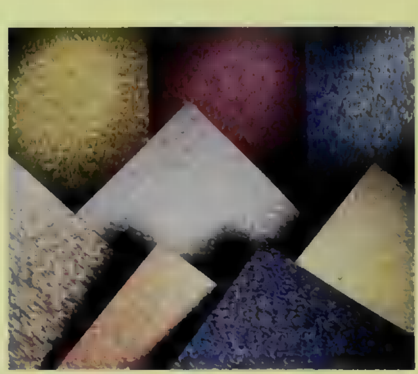
310. Racked up
The Genesis rack is designed for no-instructions-necessary bicycle parking, protection, and two-point-lockup. A simple, "floating" construction of structural-steel tubing bent into concentric squares, the racks hold up to eight bikes in ground- or surface-mount styles. Finish options include powder-coat colors or stainless steel. 800/448-7931. Madrax, Inc., Middleton, Wis.

311. Cost-effective plotters
Two new plotters incorporate Microsoft Windows and AutoCAD drivers in fast, compact, D or E plotters priced for the smaller architectural office. The monochrome DesignJet 230 is described as the first large-format inkjet device expected to sell for about $2,000; the 250C color unit is under $3,000. Stands are an option. 800/851-1170. Hewlett-Packard Co., Palo Alto, Calif.



312. Architectural art glass
Inner-Lite laminated panels have combinations of beveled, hand-blown, fluted, textured, and etched glasses furnished as an insulated-glass unit. A new Preferred Patterns line offers geometric and organic motifs at less cost than custom-made configurations. Said to fit easily into standard mullions, panels can be used as exterior windows. 707/255-5954. Architectural Glass Design, Inc., Napa, Calif.

313. Design-award winner
Set on a sun-following single-point mount, Boston architect Gary Wolf's IDSA gold-medal-winning Zephyr hammock improves on the lawn-and-porch classic. Its reverse-curved aluminum frame and marine-grade fittings will not rust; rain-proof mesh or acrylic hammock fabric can match other furnishings. Other mounting options include tree-to-tree. 401/272-4780. Heliotrope, Providence, R.I.



314. Impressionistic linoleum
A brand-new pattern based on the shimmering colors used by Claude Monet and other artists, Artoleum Scala floorcovering comes in a total of 30 shades, grouped in six distinct lines. A true linoleum, sheet flooring can be maintained by dry or wet systems, is fire- and static-resistant, and meets all slip-and-fall standards. 800/842-7839. Forbo Industries, Hazleton, Pa.

315. Child-size seating
Made of a single piece of laminated hard maple, Woodcrest chairs are both lightweight and extremely durable. The line comes in four seat heights—from 8- to 14-in.—to accommodate the mix of chair sizes needed by groups of children from years 2 through 8. Very stable, even stacked six high. Price range: under $60. 800/777-4244. Community Playthings, Farmington, Pa.

316. Trading desks
Custom furniture can meet the extensive electronic requirements of trading floors with workstations that hold CPUs, monitors, keyboards, and phones while maintaining sightlines across the space. Steel-framed and finished-to-order units must handle heat buildup from equipment and integrate with underfloor power and hvac distribution. 212/777-0808. Woodtronics, New York City.

317. Bird control
"Porcupine wire" bird-deterrent products now come in both standard and custom colors to blend even more unobtrusively with building exteriors. The spring-tempered stainless-steel devices need no upkeep, and come in several configurations to fit specific site and anti-pest requirements. Free layout services available. 800/624-1189. Nixalite of America, Inc., East Moline, Ill. ■

Short Takes

Buying spree. Vistawall Architectural Products, a division of Butler Manufacturing, has purchased Chattanooga-based Skywall, Inc., a manufacturer of translucent skylight and curtain-wall products. Vistawall, located in Terrell, Tex., already owns Naturalite/EPI Skylight Systems.

NAFTA marches on. While GE Lighting starts up a $40-million fluorescent-lamp production line to make T8s in Oakville, Ont., Andersen Corporation acquired two Canadian window makers, Dashwood Industries Ltd. and Laflamme & Frere. This makes Minnesota-based Andersen the largest manufacturer of windows and patio doors in Canada.

Paint maker spreads out. Fending off a counteroffer from Sherwin-Williams, Imperial Chemical Industries P.L.C. acquired New York-based Grow Group in May. Grow-owned paint brands include Ameritone, Devoe & Raynolds, and Sinclair, and merging these with I.C.I.'s Glidden and other labels will create the largest paint and coatings manufacturer in the country.

Winning bid. After sweetening their offer to $54 a share, Delcor, Inc., a group that includes former National Gypsum Co. executives, finally got board approval of their acquisition of National Gypsum Co., headquartered in Charlotte, N.C. ■

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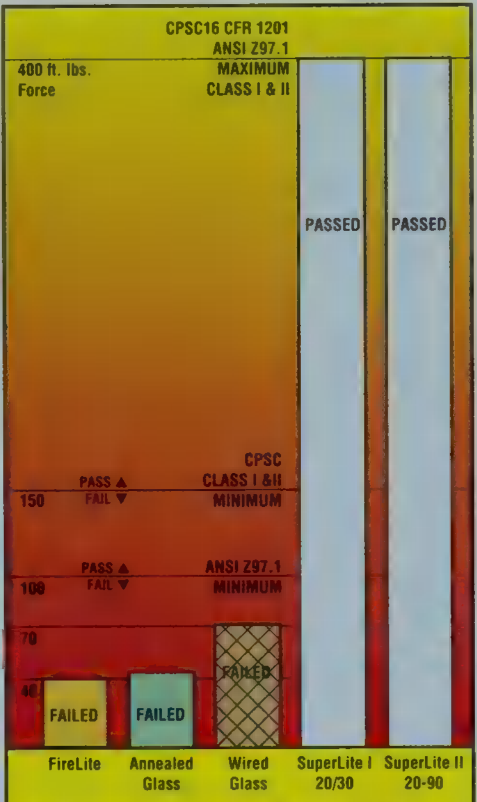

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[illegible] mala.

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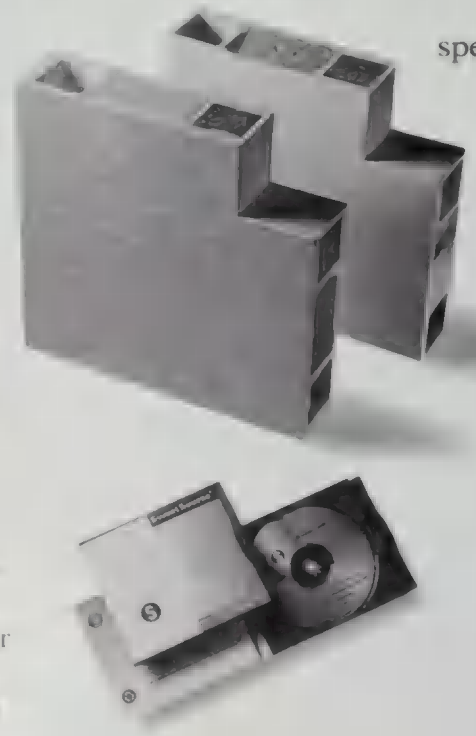

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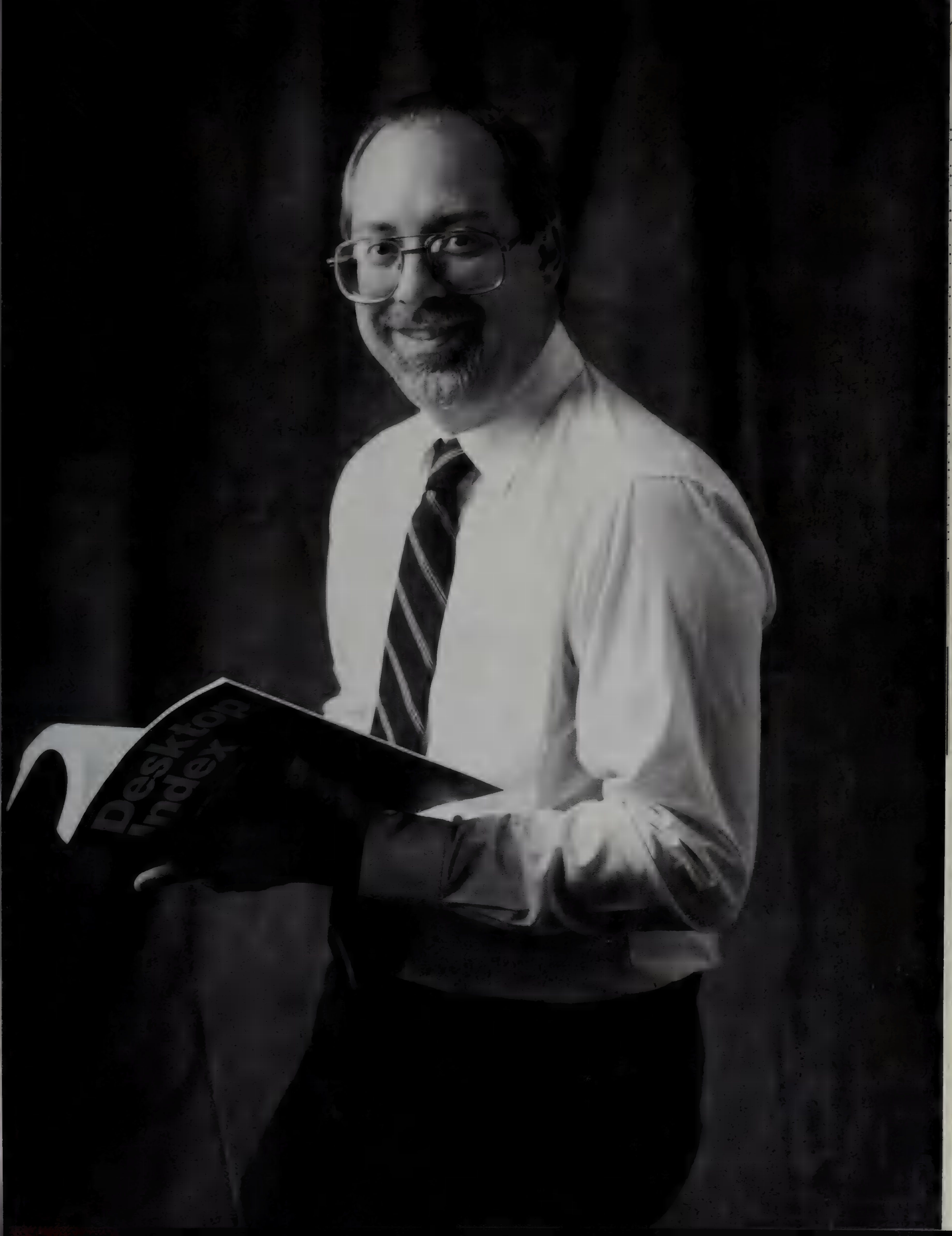
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It Changed Music

Music Changed The Generation

The Generation Changed The World

1963 Fender Stratocaster

It was different by design.

Once in a great while, an innovation comes along that changes the way we do things forever. It just takes the vision to see ordinary things in extraordinary new ways.

That innovative spirit is alive and well at **DPIC**, the professional liability insurance company that's different by design. The electric guitar inspired a whole new level of musical expression, and that expression changed the way we look at our world. **DPIC's** visionary approach has inspired an entire industry and changed it for good.

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Additional course offerings of interest are Seminar 101, 1994 U.B.C. Nonstructural Update; Seminar 105, Accessibility and Usability; and Seminar 115, Architectural Applications of the U.B.C. Read on for a brief description of these and other seminars in the design/plan review series. To receive a detailed description of any ICBO seminar, contact ICBO Seminar Services at (800) 423-6587, extension 3244 or 3266. You may also request the seminar descriptions and schedules from ICBO's Fax Information Service by dialing (310) 699-4253. If there is not a seminar in your area, ICBO will be happy to work with you to offer a program for you or your group. ■

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Seminar Descriptions

101—1994 U.B.C. Nonstructural Update

This fast-paced one-day seminar addresses many of the changes to the administrative, fire- and life-safety, and inspection provisions which appear in the 1994 U.B.C. This seminar also provides participants with background information on and discussion of some of the ramifications of the changes.

105—Accessibility and Usability

This intensive one-day seminar provides an overview of and a perspective on the accessibility and usability provisions found in 1994 U.B.C. Chapter 11. This program will be of interest to building designers, architects, plan reviewers and others seeking a basic, but thorough, understanding of the elements involved with site and structure accessibility and usability.

115—Architectural Applications of the U.B.C.

Developed specifically for architects and designers who use the U.B.C., this one-day seminar focuses on a review of the design options addressed in the code. This seminar also provides valuable information regarding code regulations and their impact on site and building design.

Participation in this program can help you identify available design options, locate additional information to assist you with the 1994 U.B.C., and discover how to use the U.B.C. more efficiently.

Plan Review Series

310—Design/Plan Review I *Building Classification*

Also available as two one-day seminars, this two-day seminar addresses the essential provisions of the 1994 U.B.C. that relate to building classification. The issues discussed are the basis for many design and plan review decisions. The subjects addressed in this seminar are found in U.B.C. Chapters 5, 6, 7 and 15.

320—Design/Plan Review II *Detailed Occupancies*

Also available as two one-day seminars, this two-day course has been developed for study of the code provisions applying to individual occupancies. Students focus on the different occupancy groups and their specific requirements found in 1994 U.B.C. Chapters 3 through 12. Instruction also covers selected specialized items found throughout the U.B.C. as they relate to individual occupancies.

This course is built on the principles developed in Seminar 310 (Building Classification) and is intended for individuals who understand the basic concepts of occupancy classification.

330—Design/Plan Review III *Exiting*

The main provisions involving exiting systems, including individual exit components, are addressed in this two-day seminar. Also available as two one-day seminars, Seminar 330 discusses all aspects of exit design as set forth in the 1994 U.B.C. This invaluable course will provide an understanding of the many details of properly designed exiting systems.

340—Design/Plan Review IV *Fire Protection*

This two-day seminar emphasizes the important provisions involving fire-resistant construction and fire extinguishing systems. A portion of the discussion focuses on the major *Uniform Fire Code™* requirements referenced in the 1994 U.B.C. This fast-paced course addresses many issues covering the hazards of fire within a building.

350—Design/Plan Review V *Special Topics*

Many specific U.B.C. topics are addressed in this two-day seminar. Included in the discussion are details of malls, atria, skylights, glazing and other specialized subjects. Also available as two one-day seminars, this seminar is designed to further develop the understanding of specific design elements for those individuals already familiar with code fundamentals.

380—Overview of the U.B.C. *A Guide to Effective Use of the U.B.C.*

Designed to provide a broad overview of the U.B.C., this two-day seminar was developed primarily for design professionals but also benefits building department personnel who want to review the fundamental provisions of the code. Seminars 310 through 350 are available for those who want a more comprehensive development program or are intereste in specific nonstructural issues.

This offering addresses all major el ments of the code, including classific tion of buildings, exiting, fire-resistive construction and conventional constru tion, and prepares the professional to use the U.B.C. more effectively.

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There are a number of reasons why ese certifications are valuable to rchitects. First, certification lends cred-ility to the architect or intern pursuing career path in the building inspec-on industry. Certification can also elp the retired architect seeking part-me employment in small communities. econd, most architectural students do ot receive in-depth code training at e undergraduate or graduate level—nly through self-study, seminars and ractical experience do architects gain -depth knowledge of building codes. hird, in the process of acquiring pro-cts, a firm's competency in building odes provides an advantage over ompetitors with otherwise equivalent ualifications. Finally, as publisher of e *Uniform Building Code*, ICBO ffers certification that carries a high vel of credibility.

While ICBO offers 22 categories of ertification, the two most beneficial to rchitects and interns are certification s a Certified Plans Examiner and a uilding Code Accessibility/Usability pecialist. The plans examiner certifi-ation is designed to show satisfactory nowledge of relevant codes, stand-rds and practices necessary for com-etence in reviewing and checking ans and specifications for compli-nce with the nonstructural aspects of 1994 U.B.C. Volume 1. Certification as a Building Code Accessibility/Usability Specialist is designed to show satisfactory knowledge of relevant accessibility codes and standards necessary for competence in the evaluation of both new construction and the retrofitting of existing/adaptable buildings and associated plans examination. This examination is based on the 1994 U.B.C. and CABO/ANSI A117.1-1992, Accessible and Usable Buildings and Facilities. It should be noted that all three model building codes have virtually the same scoping provisions and reference the CABO/ANSI A117.1-1992 standard.

The International Conference of Building Officials' Certification Program is based on voluntary participation. It carries no guarantee that the certifications issued will be accepted or recognized by a governmental jurisdiction. However, several state agencies use certification for mandatory credentialing requirements, among them Oregon, Utah and Texas. For example, in Texas, the Department of Licensing and Regulations, Division for the Elimination of Architectural Barriers, requires certification by a model code organization as a qualification for architects or others to perform third-party accessibility plan review. The ICBO Plans Examiner and Building Code Accessibility/Usability Specialist certifications are among those accepted.

Once individuals are certified, they may use their certification on business cards, advertisements, etc. For more information on ICBO's Voluntary Certification Program, contact ICBO headquarters at (800) 423-6587, extension 3208. You may also request information from ICBO's Fax Information Service by dialing (310) 699-4253. ■

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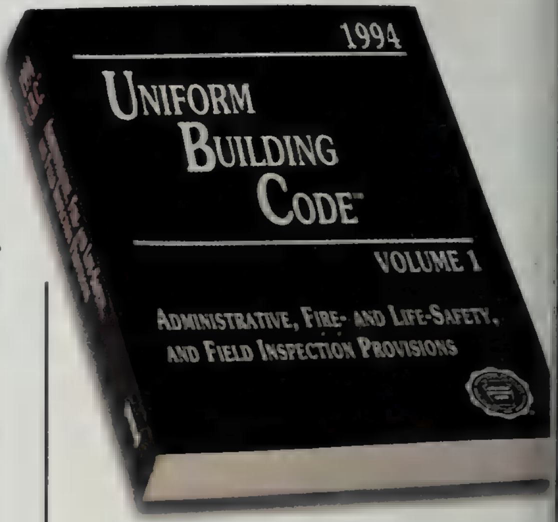
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Since its beginning, ICBO ES func-ions have expanded considerably and t is currently a wholly owned sub-idiary corporation of ICBO with a staff of professionally licensed civil, tructural, fire, mechanical and quality control engineers. Today, ICBO ES per-orms evaluation of data on building products as well as evaluating testing laboratories and quality assurance agencies, while an advisory evaluation committee comprised of building officials conducts public hearings. The hearings are a neccessary step to provide input in the development of requirements for products that are alternatives to those permitted by the *Uniform Building Code* (U.B.C.). All testing is performed by independent laboratories recognized under the ICBO ES Laboratory Accreditation Program.

The ICBO ES Evaluation Reports Program is intended to assist building code enforcement officials, but actually serves the entire building industry by evaluating building products and services in an impartial manner. Those products and services found to comply with the U.B.C. are recognized through technical reports. This service is essential because not many code enforcement agencies have the time and expertise to do this work. Product evaluation provides the manufacturer with a means of gaining recognition for compliance with the U.B.C., which is the basis for building law in much of the United States.

In support of various free trade agreements which are working toward the elimination of extraneous technical barriers, ICBO ES is active in efforts to establish recognition of products and services across international boundaries. The organization is a charter member of a newly formed international group of conformity assessment organizations on building products, and the ICBO ES president serves as the United States chairman of the construction sector of the North American Trilateral Standardization Forum. ICBO ES has also developed bilateral working relationships with Japan, Canada, Brazil, Australia and New Zealand and the ICBO ES Laboratory Accreditation Program is recognized internationally through participation in the International Laboratory Accreditation Council and the Asia Pacific Laboratory Accreditation Cooperation.

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Publications & Products

Plan Review Manual

Professionals who prepare or examine plans for buildings to be constructed under the provisions of the 1994 U.B.C. reach for the *Plan Review Manual*. This manual provides the background needed to understand the code provisions and accurately determine if construction drawings demonstrate compliance with the code. The major focus is on nonstructural aspects, including fire-resistant construction, maximum sizes of buildings for particular occupancies, exit considerations and automatic sprinkler systems. Basic structural aspects of plan review and the conventional wood construction provisions are also included. This book is an indispensable aid to those engaged in the preparation or review of plans. *(198 pages)*

1994 Edition
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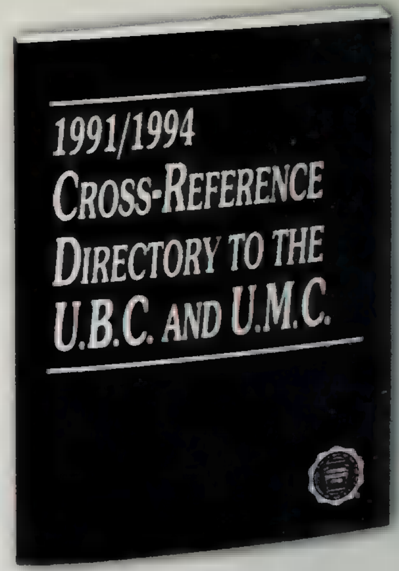

1991/1994 Cross-Reference Directory to the U.B.C. and U.M.C.

This time-saving publication contains easy-to-read cross-reference tables that enable you to move effortlessly between the 1991 and 1994 editions of the *Uniform Building Code™* and *Uniform Mechanical Code™*.

Cost: $15.50 **Item No. 095S94**
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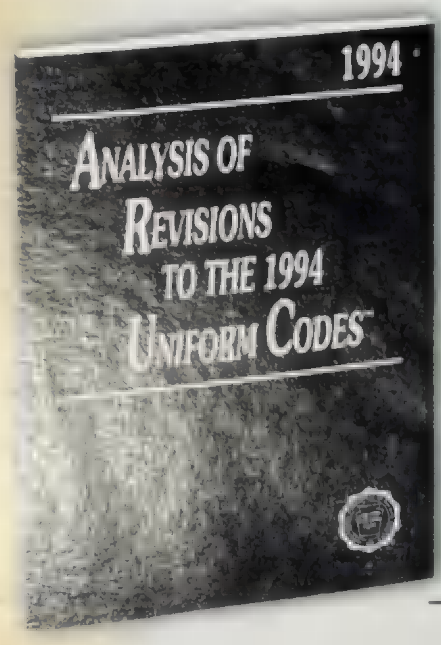

1994 Uniform Building Code

This new edition of the U.B.C. has been reformatted and reorganized into three volumes.

Volume 1— Administrative, Fire- and Life-Safety, and Field Inspection Provisions
Volume 2— Structural Engineering Design Provisions
Volume 3— Material, Testing and Installation Standards

Volumes 1, 2 & 3, soft cover	Cost: $173.90	**Item No. 099S94**
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Volumes also sold separately. Quantity discounts available.

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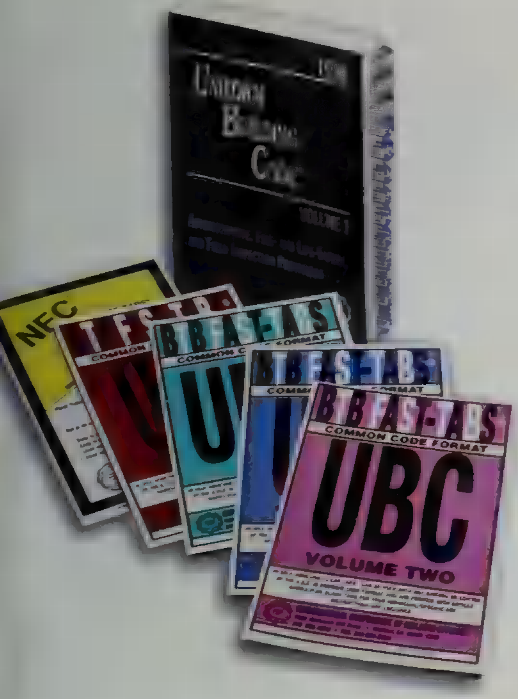

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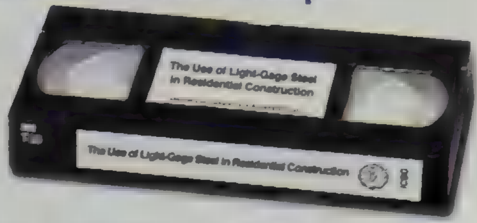
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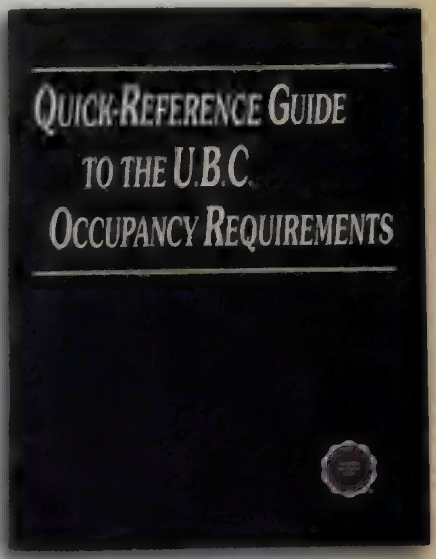

Quick-Reference Guide to the U.B.C. Occupancy Requirements

A proven time saver for locating code requirements, this book is a favorite among ICBO's technical staff. The code requirements for each occupancy group are compiled and consolidated into easy-to-read tables, including the new occupancy classifications in the 1994 *Uniform Building Code.*

At a glance, you can compare provisions such as fire-resistive ratings for occupancy separations in Table 3-B, exterior wall and opening protection requirements in Table 5-A, and fire-resistive ratings for types of construction in Table 6-A. This guide enables building officials, engineers and architects to quickly identify code provisions that apply to an individual project.

1994 edition

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ANSI A117.1-1992 Video and Standard

The *Understanding CABO/ANSI A117.1-1992* videotape illustrates site and building accessibility, accessible routes, and building elements referenced in the provisions of CABO/ANSI A117.1-1992. **Includes a copy of CABO/ANSI A117.1-1992 (Guidelines for Accessible and Usable Buildings and Facilities).** Based on the *1993 Accumulative Supplement to the Uniform Codes. (20 minutes)*

Video and CABO/ANSI Standard
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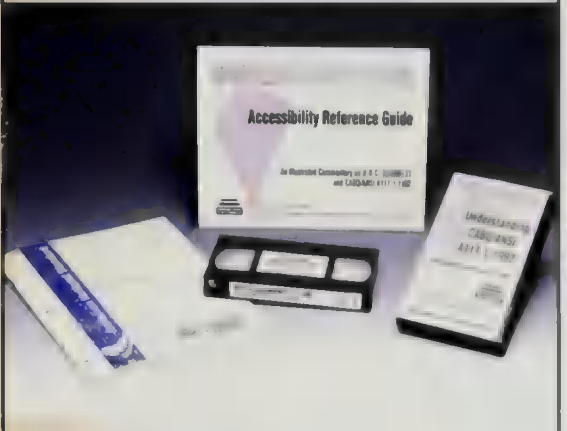
Accessibility Reference Guide
Understanding CABO/ANSI A117.1-1992

Accessibility Reference Guide

This guide is a valuable resource for architects, interior designers, plan reviewers and others who design and enforce accessibility provisions. The reference contains U.B.C. Chapter 31 as published in the *1993 Accumulative Supplement*, along with detailed commentary and graphics to clarify the provisions; cross-references to other applicable sections of the U.B.C. and the Americans with Disabilities Act Accessibility Guidelines; a checklist of U.B.C. provisions on access and usability requirements; and many other useful references. *(146 pages)*

1991 edition, per copy $22.50
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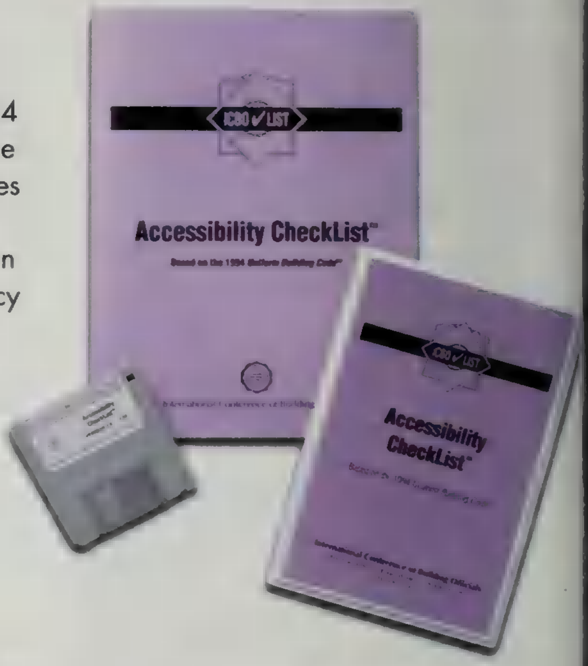
1994 CheckLists

The comments provided in the 1994 UBC Nonstructural CheckList™ and the Accessibility CheckList are ideal guides for code review during preliminary design and plan review. Now you can increase the uniformity and consistency of each of your code reviews, save valuable time by eliminating many frequently missed code requirements, and create customized checklists for custom requirements or common structures.



Accessibility CheckList

Based on the 1994 *Uniform Building Code* and CABO/ANSI A117.1-1992, this checklist provides hundreds of comments regarding building accessibility by occupancy, site accessibility, accessible exterior routes, egress provisions and areas of refuge, and other detailed code requirements. Hard copy included. (DOS format)

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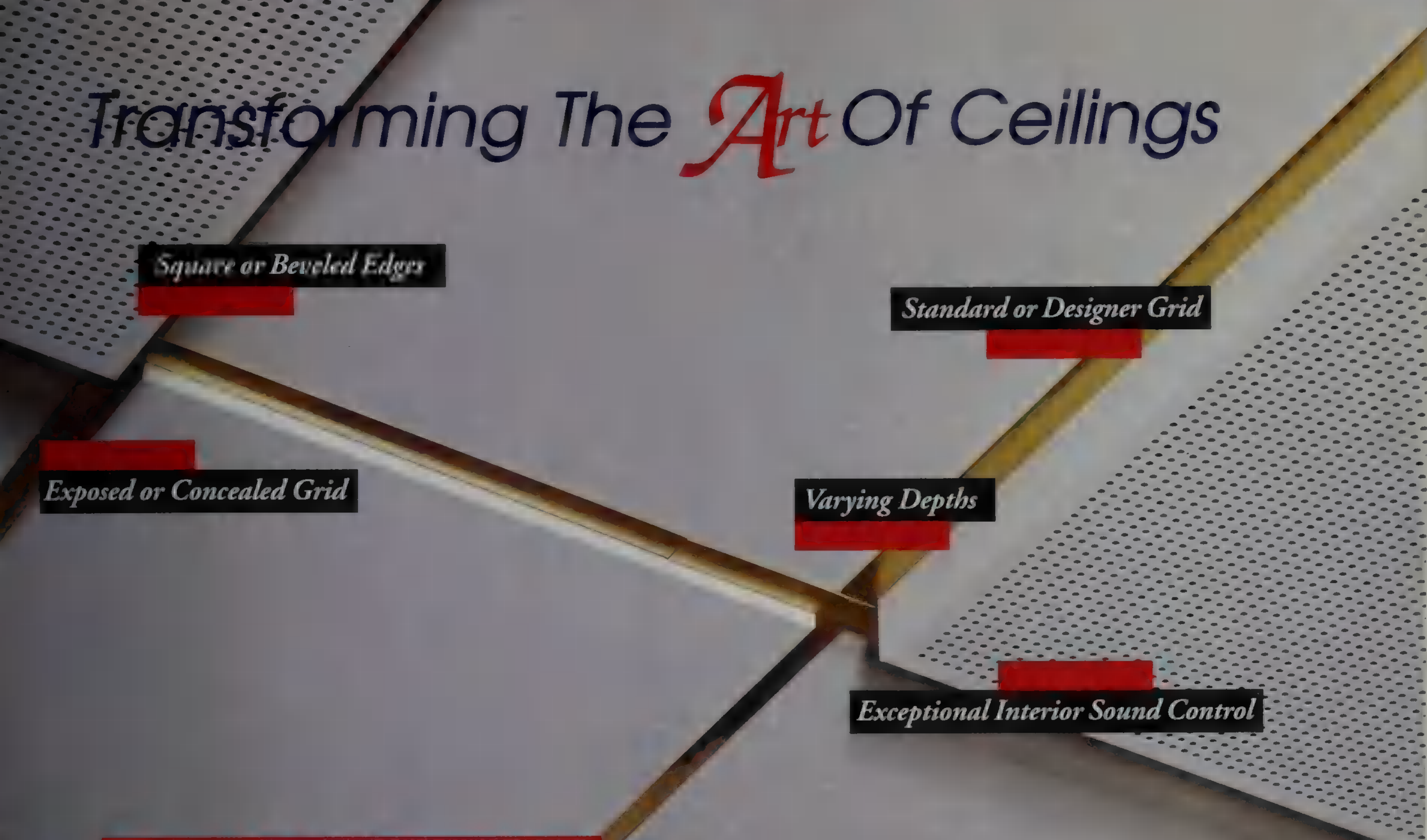
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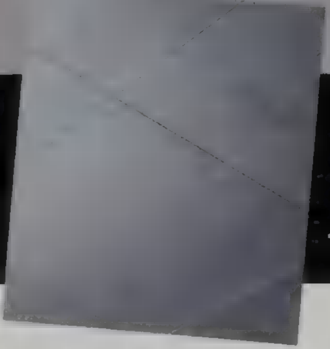

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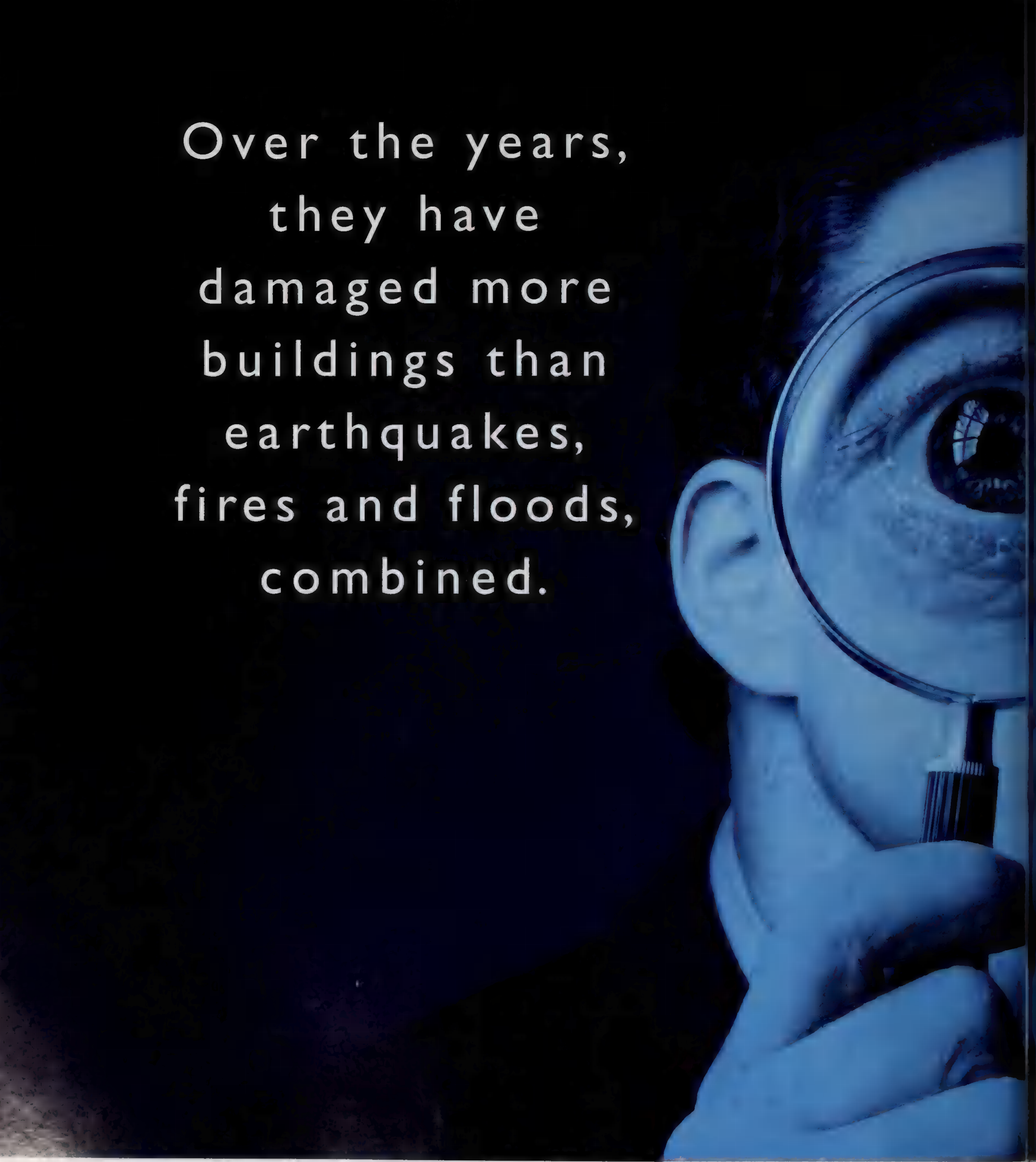
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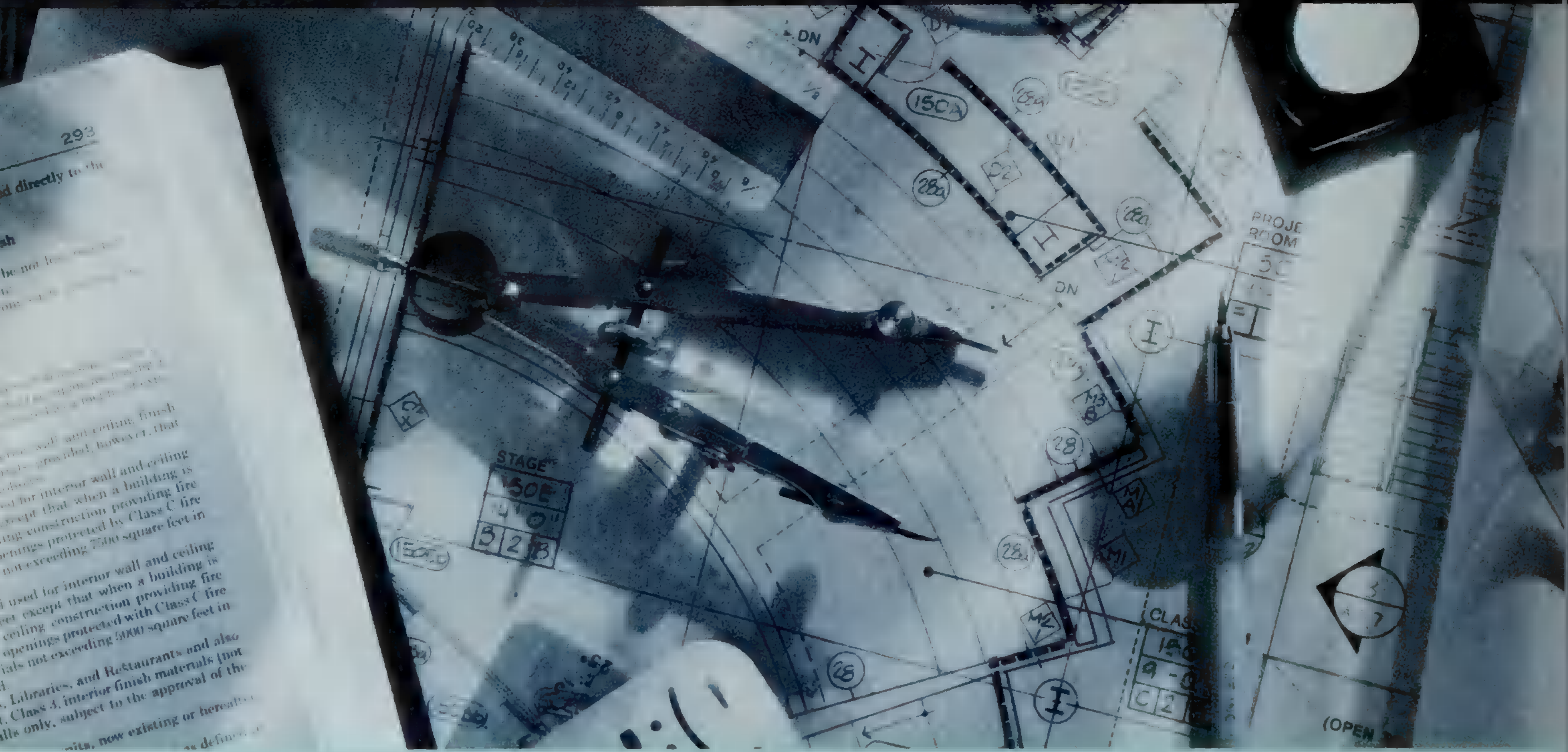

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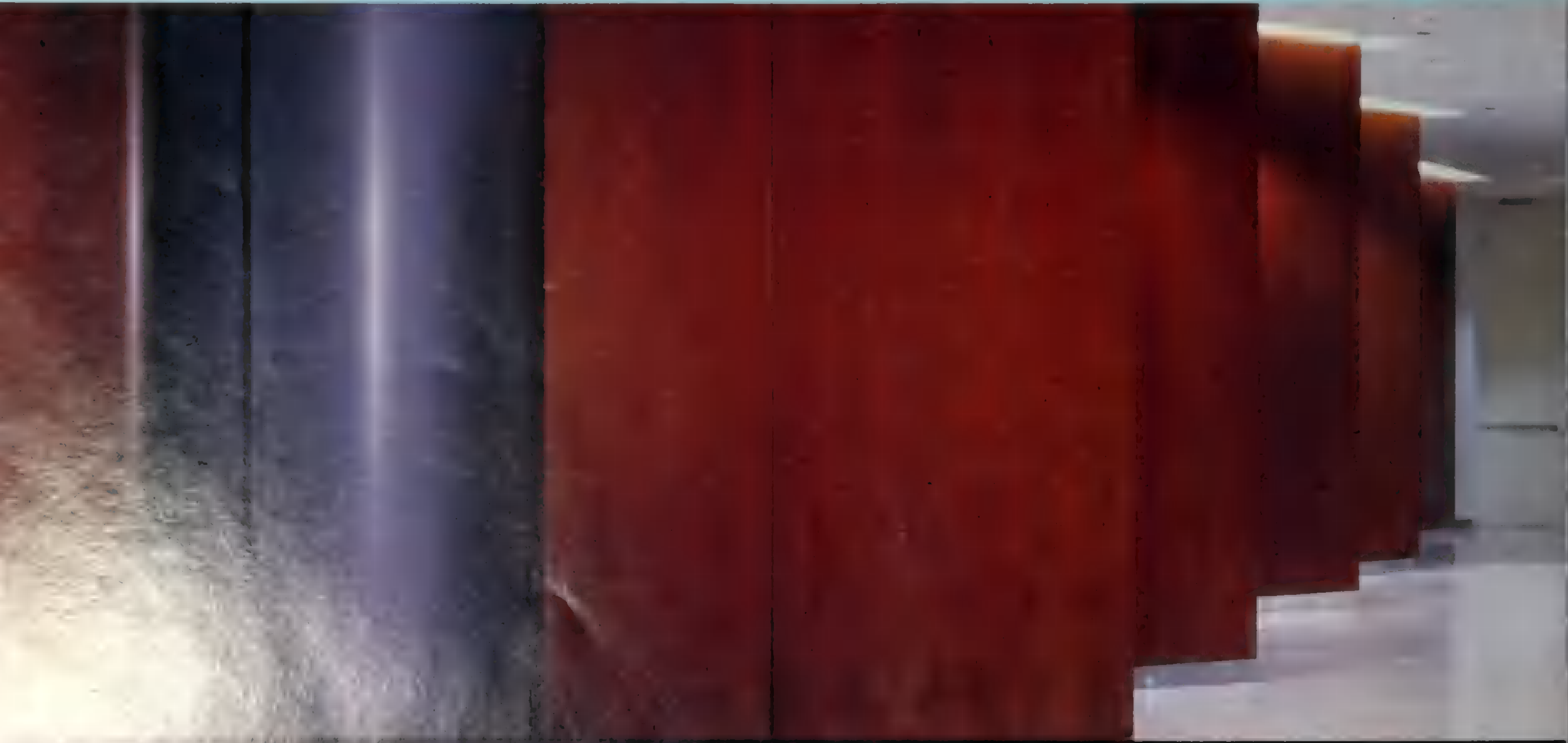

NOT A LIMITATION.

ARCHITCTURAL RECORD

Building Types Study 728 /Schools K-12

Extinct is the traditional rectangular 700-to-950-square-foot classroom where bored students fret in neat rows facing front while they struggle to memorize a teacher's rote instructions on standardized subjects of the school's choice. Now, small groups of attentive students in intimate, informal settings work together around glowing computer screens, where they study mutually interesting subjects of *their* choice. Teachers have receded into the background to become coaches and suppliers of information resources. Gone are once-distinct disciplines such as biology and physics, which have melded into all-encompassing ways of thinking. Gone, too, are separate computer labs. All newly flexible study spaces have taken their place. At least that's education's current opportunity and promise. Reality is a little more complex.

First, points out Perkins & Will principal and New York City office education-design director Raymond Bordwell, 90 percent of the schools that will be in use in the year 2000 have already been built—to traditional standards, including inflexible layouts, and wiring and hvac systems that won't support broad-based electronic information use. That is not to say that new-school construction is not thriving. F. W. Dodge reports elementary and high-school contract value was $4.286 billion in the first four months of 1995—a 31-percent increase from the same period in 1994. This surprised even Dodge's analysts who foresaw a surge five years ago when births peaked at an annual rate above 4 million—briefly matching that of the Baby Boom parents' generation.

If there is a problem with the new schools, it is that most continue to be built to old standards. Ehrenkrantz & Eckstut Architects is one of three firms designing prototype schools for New York City's system. According to Ezra Ehrenkrantz, the chief difference in school design today is provision for flexibility in the future—both in mechanical systems and in anticipated subdivisions of traditional classrooms to meet new teaching situations. Bordwell is confident that the use of electronics in education is irresistible and inevitable: "The generation entering school now will be the first to have grown up in a world where computers always existed. Its attention span is dictated by video games and TV ads." Among coming changes, he sees more space to house those computers. "Physical plants will have to adjust in many ways." Above, Ehrenkrantz pointed to methods for doing that in new buildings—and the huge retrofit market.

Why not design schools today that more directly reflect current thinking? "Education will have to solve a lot of problems before students can select from a menu of study options," observes George Metzger of HMFH Architects, which has much experience in the field. Among those problems is discipline. "Individualized courses would require an entire additional level of support," he says, referring to the sad fact that many students simply are not yet trained to live up to technology's promise. *Charles. K. Hoyt*

BLIOGRAPHY
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ARCHITECTURAL RECORD
ntain reports on significant
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gust 1993 (81-119)
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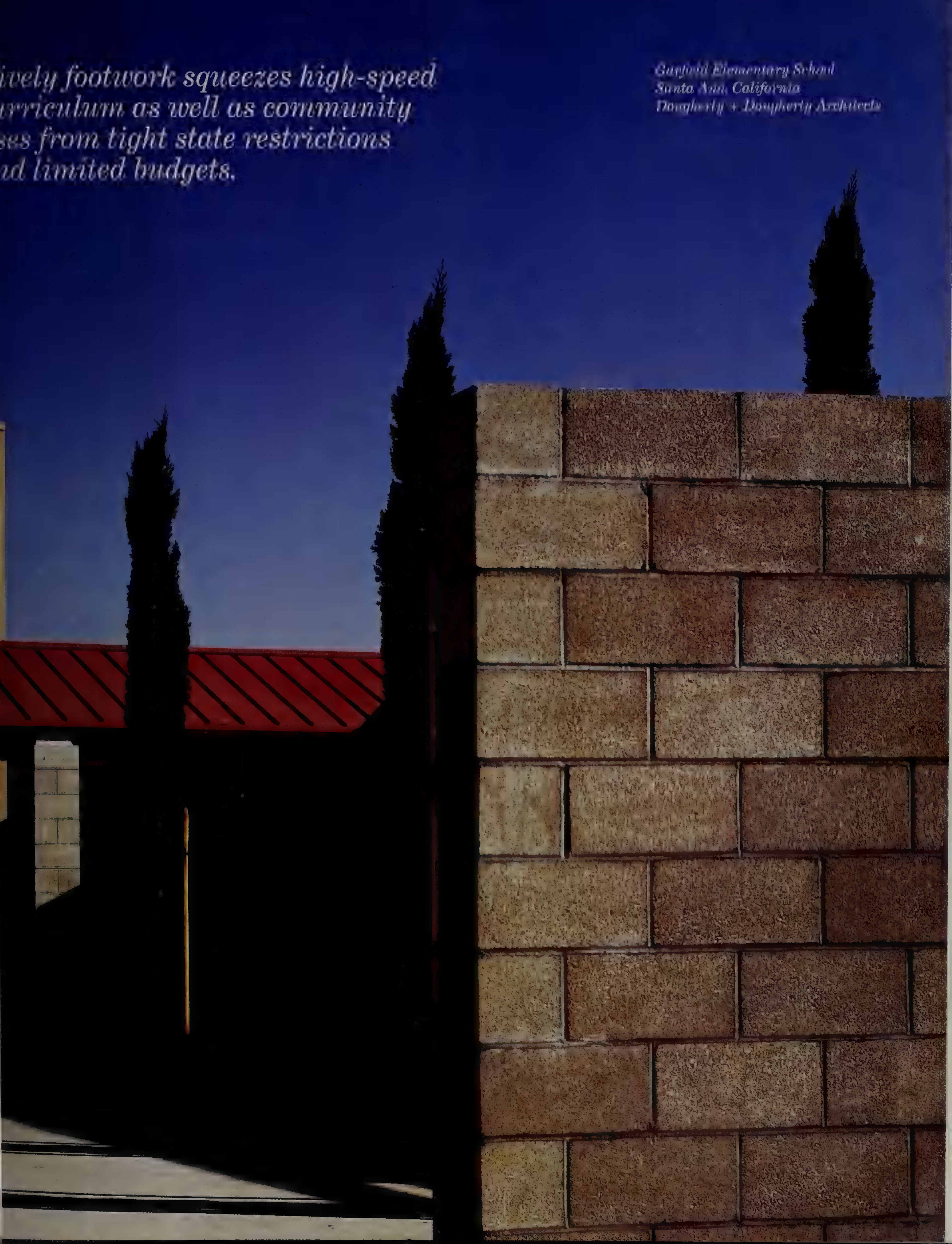
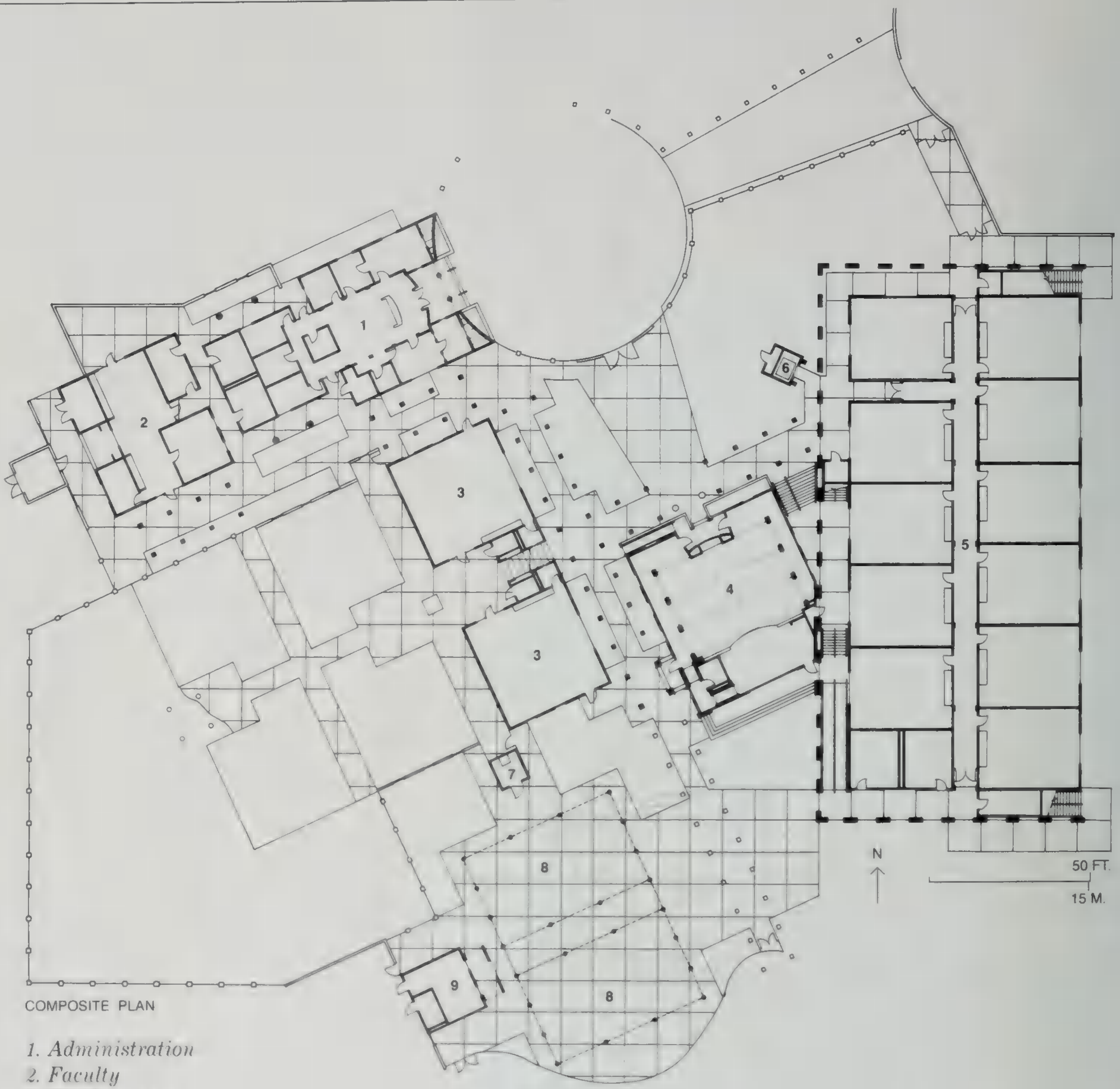
Paso Doble

ively footwork squeezes high-speed
urriculum as well as community
ses from tight state restrictions
nd limited budgets.

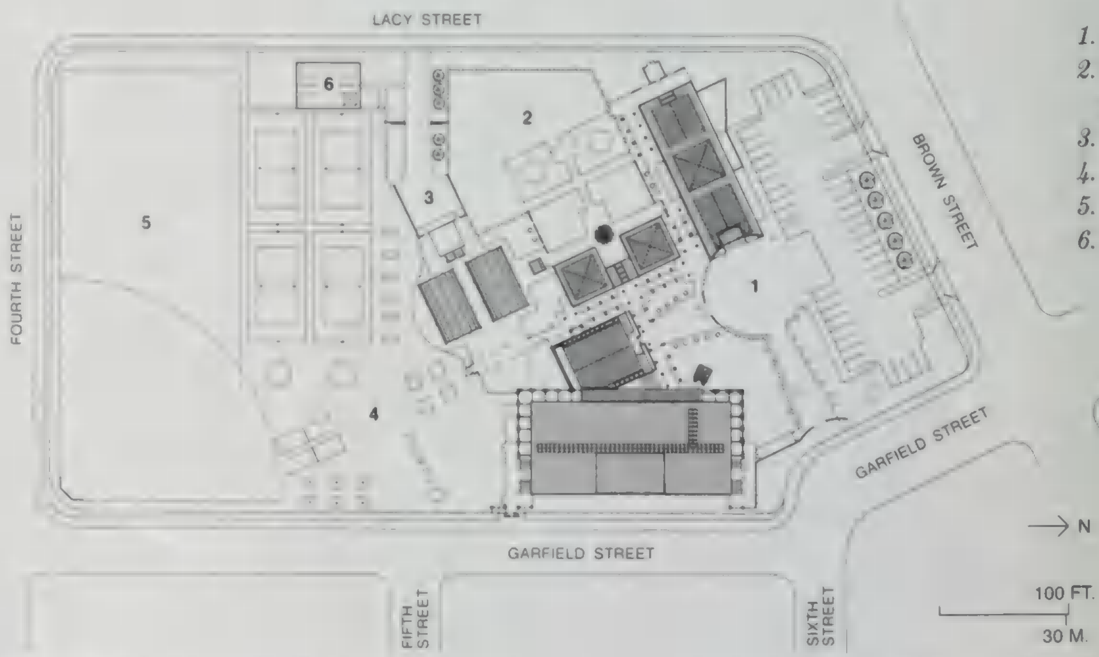
Garfield Elementary School
Santa Ana, California
Dougherty + Dougherty Architects





COMPOSITE PLAN

1. *Administration*
2. *Faculty*
3. *Kindergarten*
4. *Media center*
5. *Classrooms*
6. *Elevator tower*
7. *Kiln room*
8. *Lunch shelter*
9. *Kitchen*



1. *Piazza*
2. *Kindergarten playground*
3. *Service court*
4. *Paving*
5. *Playing fields*
6. *Historic fields*

may be the only inner-city public school that stays graffiti-free,"
s Dougherty + Dougherty principal, Betsey Olenick Dougherty.
h high respect stems from architects and city together giving the
ifornia community many benefits it sorely lacked—open space for
nd-the-clock athletics and relaxation, a freely accessible meeting
performance room, child-care facilities for working mothers, *and*
architectural presence that acts as a neighborhood focus.

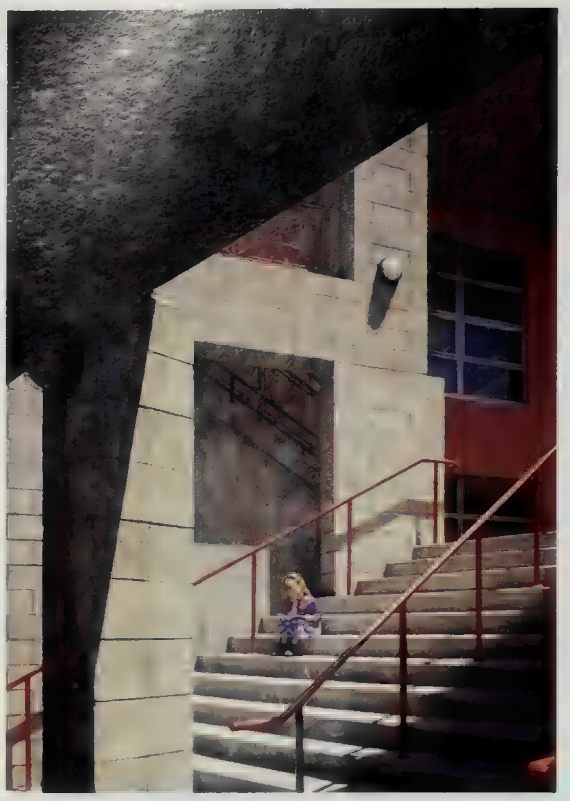
re important, Santa Ana's citizens sense Garfield Elementary
ool belongs to them. The architectural team has developed a parti
design language that responds to the users' primarily Hispanic
ditions, and reflects their day-to-day lives and long-term aspira-
ns in their best light. The built portion of the site forms a familiar
work of linear streets, squares, alleys, and "parkways" that extend
differing angles of adjacent street grids onto the site (opposite
tom). Complete with a traditional beckoning "bell tower" (which
ds an elevator) and a Roman-temple library, the festive result is
abstraction of an ideal town center built over time and well inte-
ted into its historic surroundings, which include many buildings
undergoing renewal. Furthering continuity, Dougherty +
ugherty's team has retained one distinguished neighborhood land-
k on the site's eastern boundary: a power station that once served
ng-removed trolley line and now awaits funds for recycling into a
ool-district testing center. The architects have taken a design cue
the slope of their new roofs from this building.

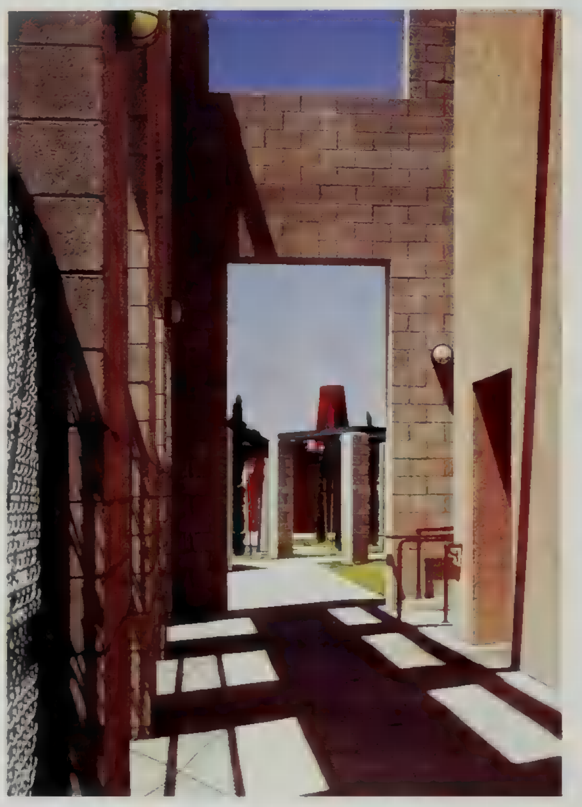
of this was accomplished within very tight limitations set by the
e, which funded the project. First was the budget, which recog-
ed neither the extra costs of providing needed community facilities
buildings on a very tight site. The conventional California elemen-
y school spreads out in one-story, single-loaded-corridor buildings
10 acres. Garfield is on four acres. To provide necessary open
ce, the classroom building had to contain double-loaded corridors
wo stories with all of the attendant costs of more stringent fire
ngs and construction, heavier lighting and hvac loads, and more
ective acoustic baffling. Dougherty + Dougherty did manage to
lge the budget up somewhat for its school and others in similar
tings by pointing out the special problems of inner-city construc-
, which Betsey Dougherty sums up as "security, visibility, and
essibility." The most economical construction for the classrooms
long-span media center turned out to be steel frame and metal
king. The rest of the $5.5-million complex is woodframe.

state also required a four-track, year-round teaching program,
ch means that some 800 students start and end their school day
staggered hours, with 600 present at any one time. They rotate
of each classroom, in which provision must be made for different
chers and courses, and locked storage for related materials. The
hitects were spared from providing multiple furniture arrange-
nts for each new class only by the school board's desire for
ventional classrooms. Still, there is provision for much more
ensive computer use than is currently practiced. Another Cali-
nia standard requires that a "media center" contain not only books
computers, but music-practice, performing-arts, and school-wide
embly facilities. The architectural team took the concept further
providing for after-hours community meetings with secured
rage for information resources. Indeed every facility seems to
ve at least two purposes. Open-air lunch areas are home to Boy
ut meetings in the evenings. The kindergarten, segregated from
rest of the school according to state law, becomes a child-care
ter before and after hours. *Charles K. Hoyt*

© Milroy & McAleer photos

Possibly the ultimate cause of high community regard can be found in the lighthearted non-institutional way the architects have interpreted tradition. The complex's varied forms are rendered in a wide range of gaily colored cement-stucco and exposed natural concrete-block walls sheltered by bright-red, factory-finished, galvanized-steel roofs.





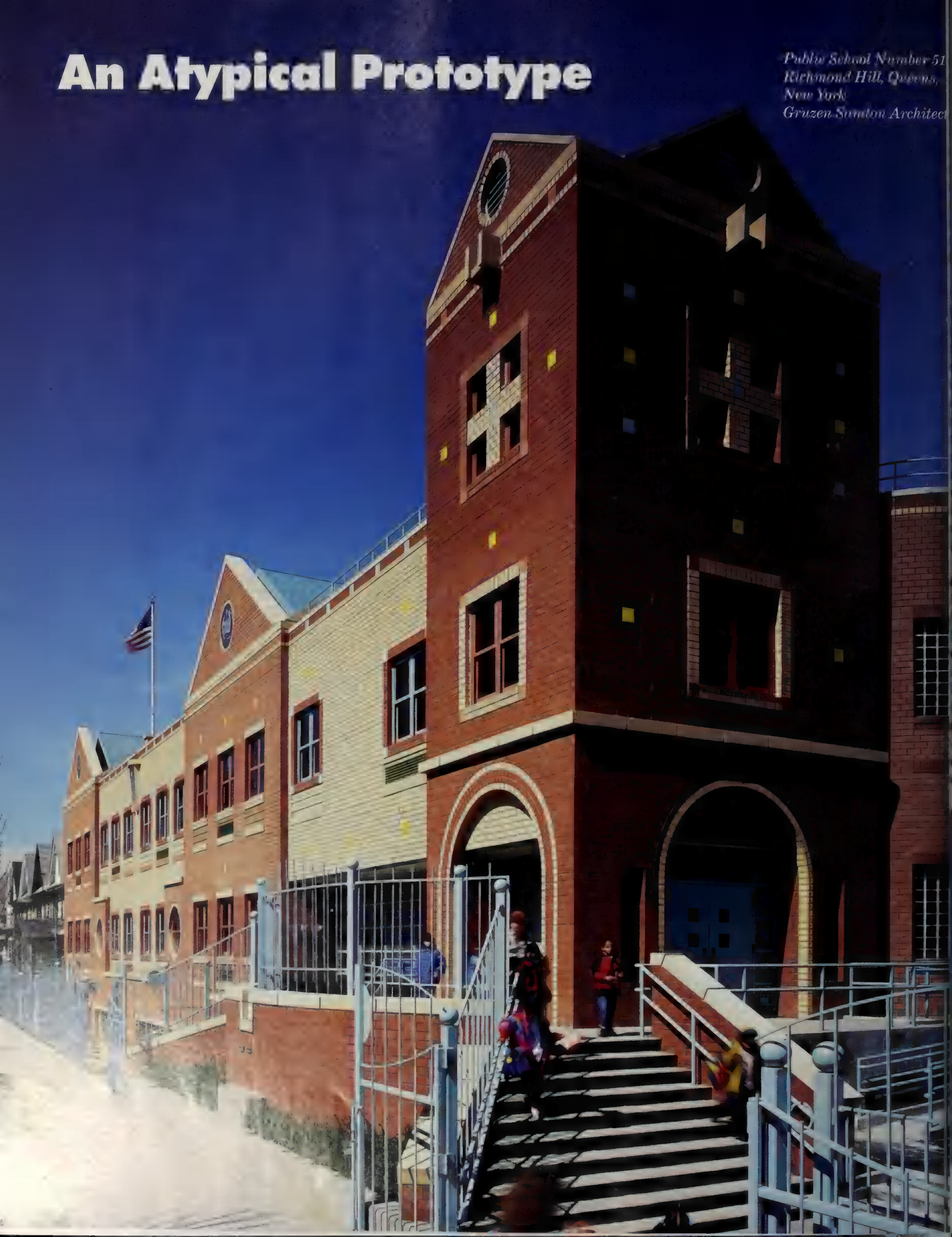
The architects have eased the transition from ground to sec floor in the classroom building by placing a monumental stai that rises in stages (far left) between the media center and upper-level open gallery (oppo site). The playful roof forms express self-containment in pyramids over the isolated kindergarten/day-care pavilio (below) and civic focus over th gable-fronted media center (pr vious page, bottom). A similar facade fronts the administrati building. As an example of the many multiple uses demande of all the facilities, an after-hours recreation program as well as the school's arts progra both benefit from an isolated k (plans) safely located away fro the wood-frame structures.

Credits

Garfield Elementary School
Santa Ana, California
Architect: *Dougherty + Dougherty—Brian Dougherty, partner-in-charge; Betsey Olen Dougherty, Michael Coons, Cheryl Patterson, Scott Osterhage, Lynn Shager, projec team*
Engineers: *Martin & Chow (structural); Tsuchiyama & Kains (mechanical); Frederick Brown & Associates (electrical) Western Pacific (civil)*
Landscape Architect: *The Ru Group*
General Contractor: *J. R. Hundley Construction, Inc.*

An Atypical Prototype

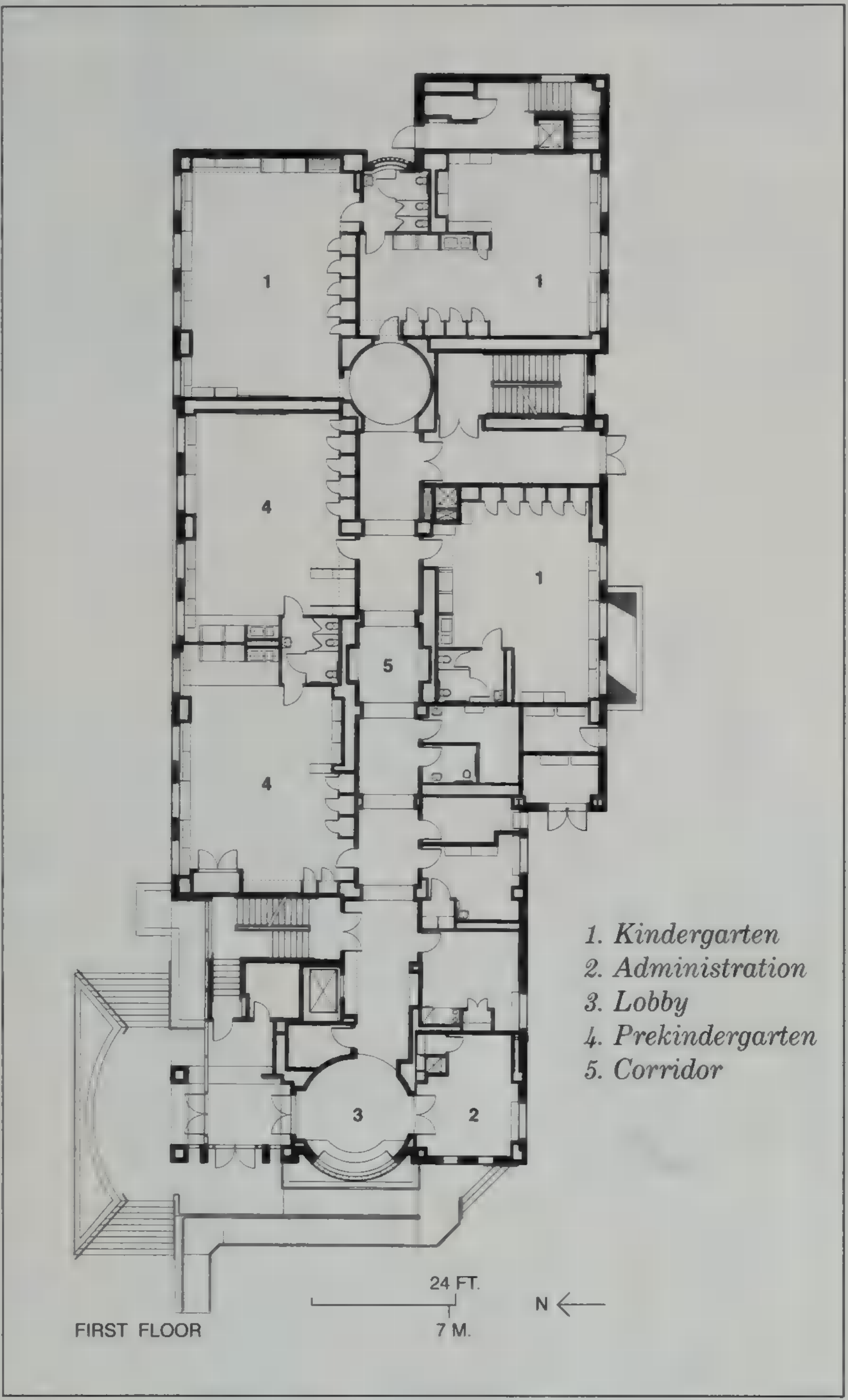
Public School Number 51
Richmond Hill, Queens,
New York
Gruzen Samton Architec

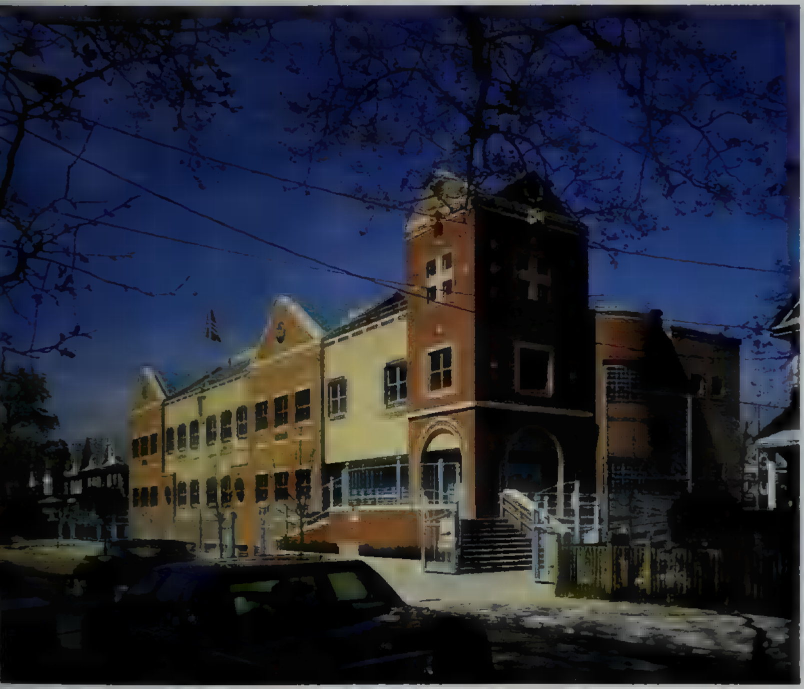


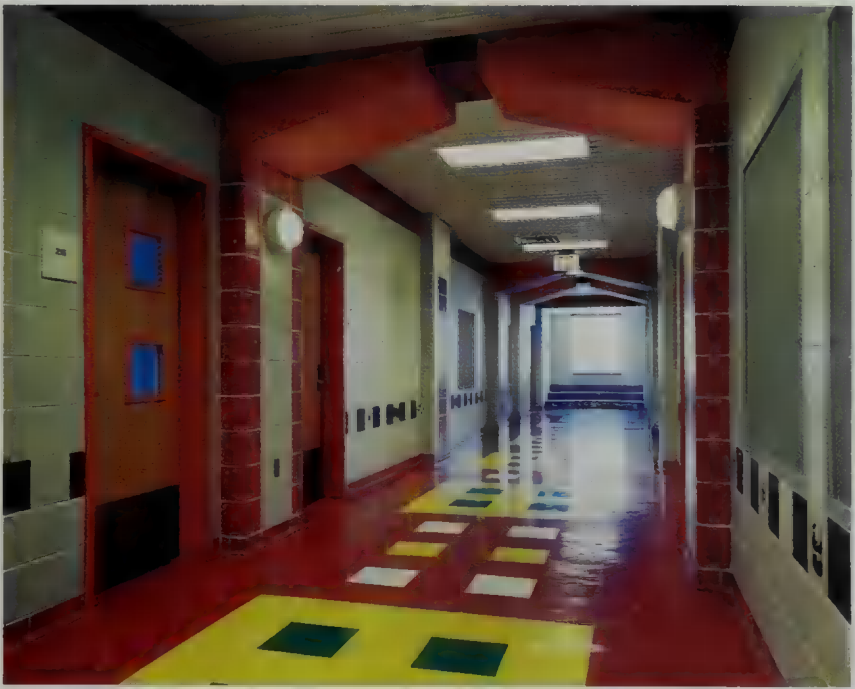
e time, the planning, design, and construction of a school in New
k City could take eight years. The School Construction Authority
A) was empowered to reduce time and cost, and actually got the
ning and construction time down to three to four years. In 1993,
SCA launched a prototype program to test the use of design/build
method of school construction. Gruzen Samton Architects and
ner Construction, who had previously designed and constructed a
ol together, won a place on the short list of five teams with a pre-
nary design and, after more design refinements, were selected to
gn and build the first prototype school, PS 51, an early childhood
er for pre-kindergarten through second grade. The cost: $7.1
on, including A/E fees.

nging a contractor onto the team helps. They know how to sim-
details, get bids, and fast-track demolition and foundations while
uments are underway," says George Luaces of Gruzen Samton.
the same time, we inspired the contractors. We were committed
-cutters, and they were very committed to building a beautiful
ding. There was none of the usual animosity between the profes-
s." In the end, that cost-cutting did not keep the building from
ng a colorful tile floor and masonry interior, nor did it scotch the
y tower, brick arches, squares of glazed masonry, scuppers, and
-stone trim that give the facades their rhythm and scale. The
ol's front setback lines and false street-front pediments comple-
t the existing neighborhood homes. "If you're a young kid, going
a big building can be intimidating," says Luaces. "We wanted the
ol to be in scale with the neighborhood so it would look something
a cross between a school and a big house." *Charles Linn*

dits
lic School Number 51
hmond Hill, Queens, New York
York City School Construction Authority
hitect: *Gruzen Samton Architects, planners and interior*
gners—George Luaces, associate partner-in-charge; Lianne
liams, Daniel Herndon, Manny Morales, Charles Eisenberg, Juan
se, project team
ineers: *Ysrael Seinuk (structural); Hardie & Associates,*
chanical)
dscape Architect: *Signe Neilsen*
neral Contractor: *Turner Construction*



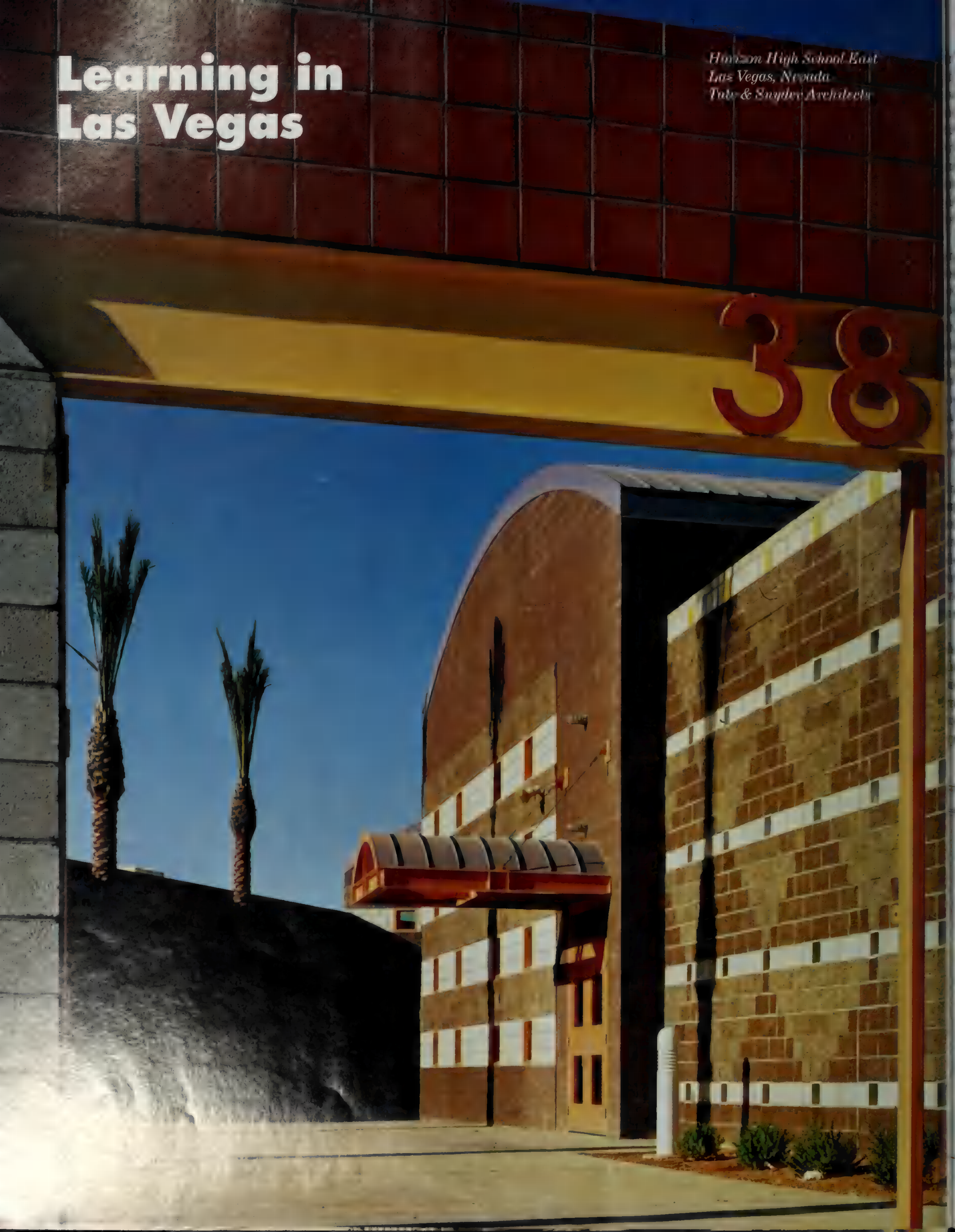




ul Warchol photos

Learning in Las Vegas

Horizon High School East
Las Vegas, Nevada
Tate & Snyder Architects

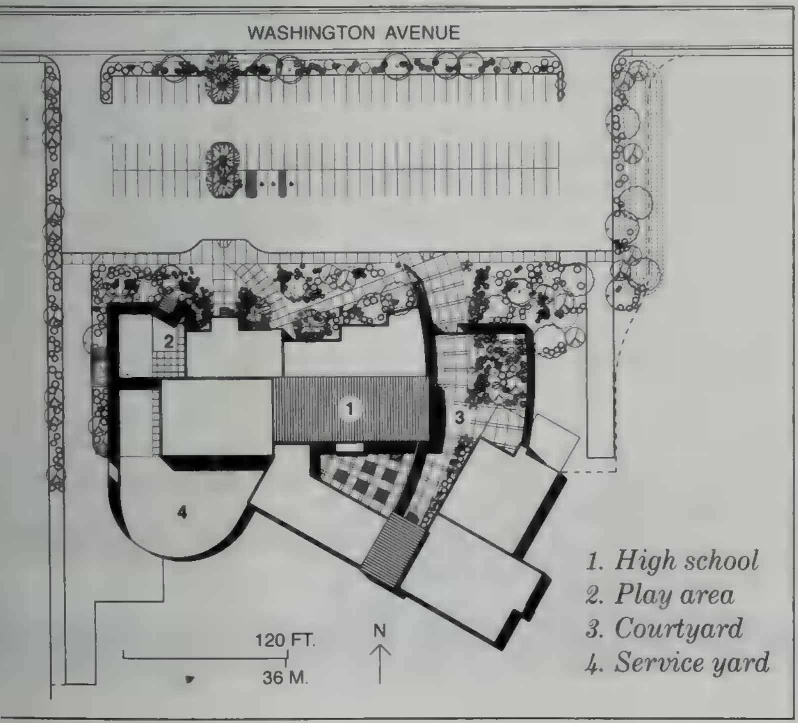


e's throw—a hefty throw, admittedly—from the glitzy towers e Las Vegas Strip, and situated on a stretch of barren terrain ss from a nondescript cluster of houses, sits a little jewel of a ol, aimed not, as you would expect, at a well-fed medley of well-sted kids zipping happily toward their diplomas, but specifically udents who are being given a second chance, students who failed ake it in Clark County's traditional schools because of poor es, drug use, a criminal record, teen pregnancy, or disruptive vior. Program director Dr. Maria Chairez calls them the "recap-d students."

zon East is the special high school prototype for a series of some ementary, middle, and high schools, standard and special, under lopment in Clark County (Las Vegas is the county seat) to absorb ssive population influx said to average 4,000 newcomers per th. Designed and constructed using a simple, rational vocabulary adbearing concrete masonry unit walls and wood trusses, these ols are intended to cost under $100 per square foot, and allow for d erection employing traditional site labor. Efficient use of scarce e is also in the plan: two entirely distinct groups of students are ht in the building—the 250 students on the Horizon program, · whom the school is named, during the day; another 250 regular ents, known as Sunset students, at night.

zon East, of course, has its special agenda. For one thing, the pus is small—total area just tops 31,000 square feet. A series of ns is allocated during the day to free daycare for children with age student-mothers and doubles as a daycare teaching facility. A service kitchen, unusual for a school this size, serves a full meal at h. And while there is predictably a strong vocational component e program, there's also emphasis on the academic side, which has wn wing.

roadmap for the program is the strategic plan drafted by Clark nty in 1988 and calling for a 100 percent graduation rate county-e. Last month, 155 students, held to the same standards as the lar program, graduated from Horizon East, motivated at least art, according to principal Patricia Green, by the "colorful and ealing setting." *Stephen A. Kliment*



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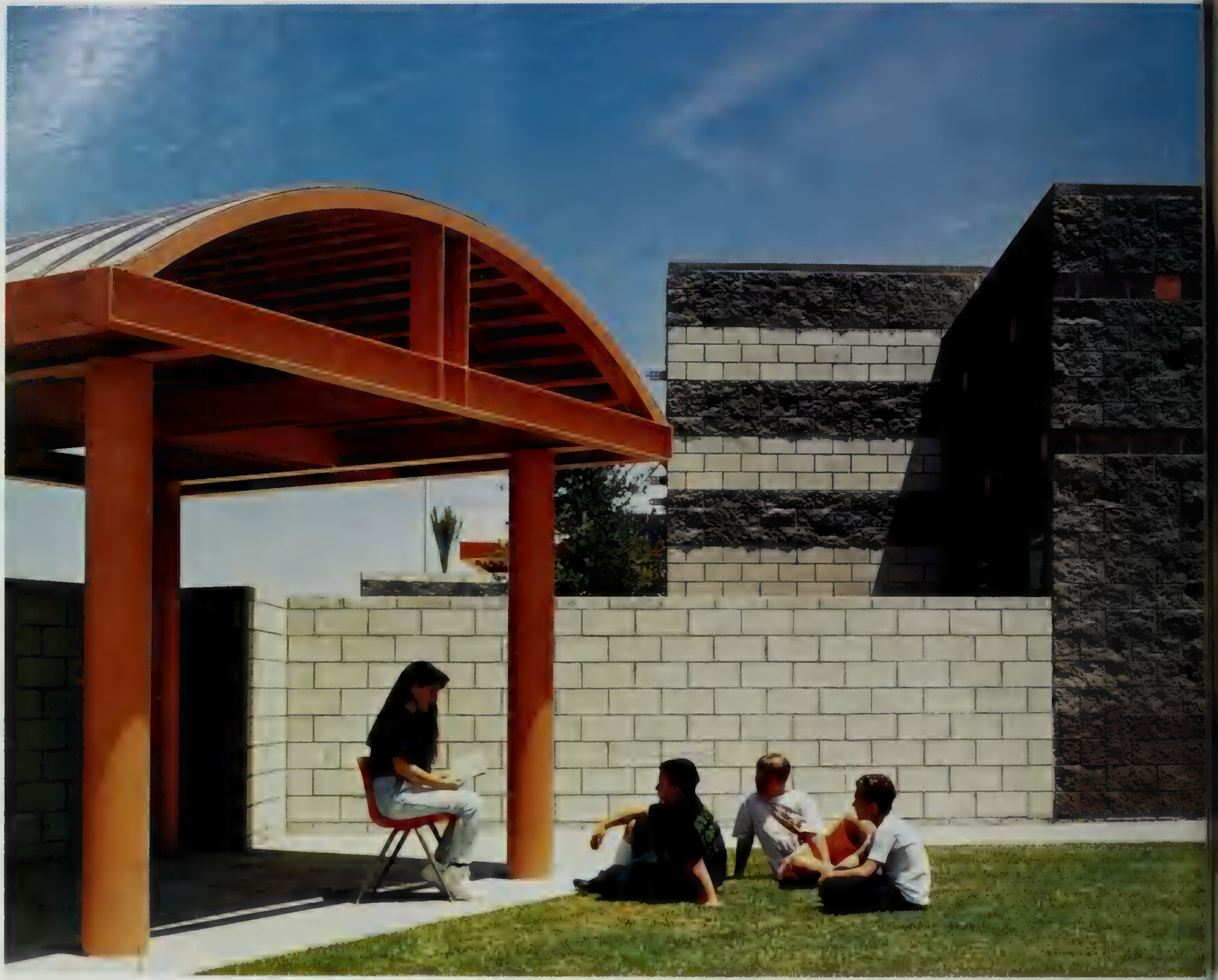
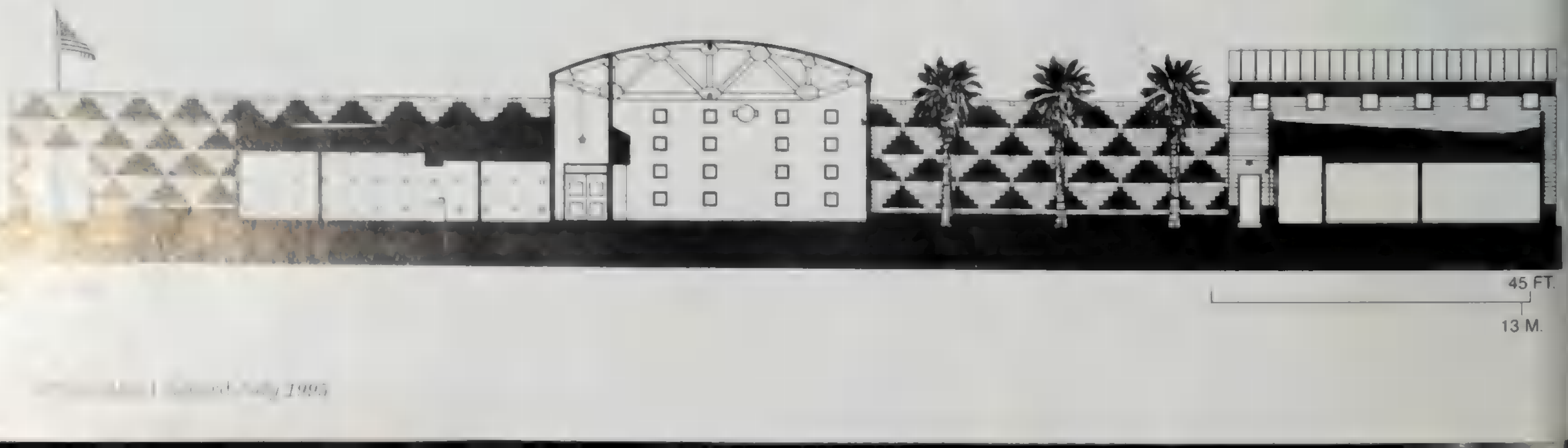
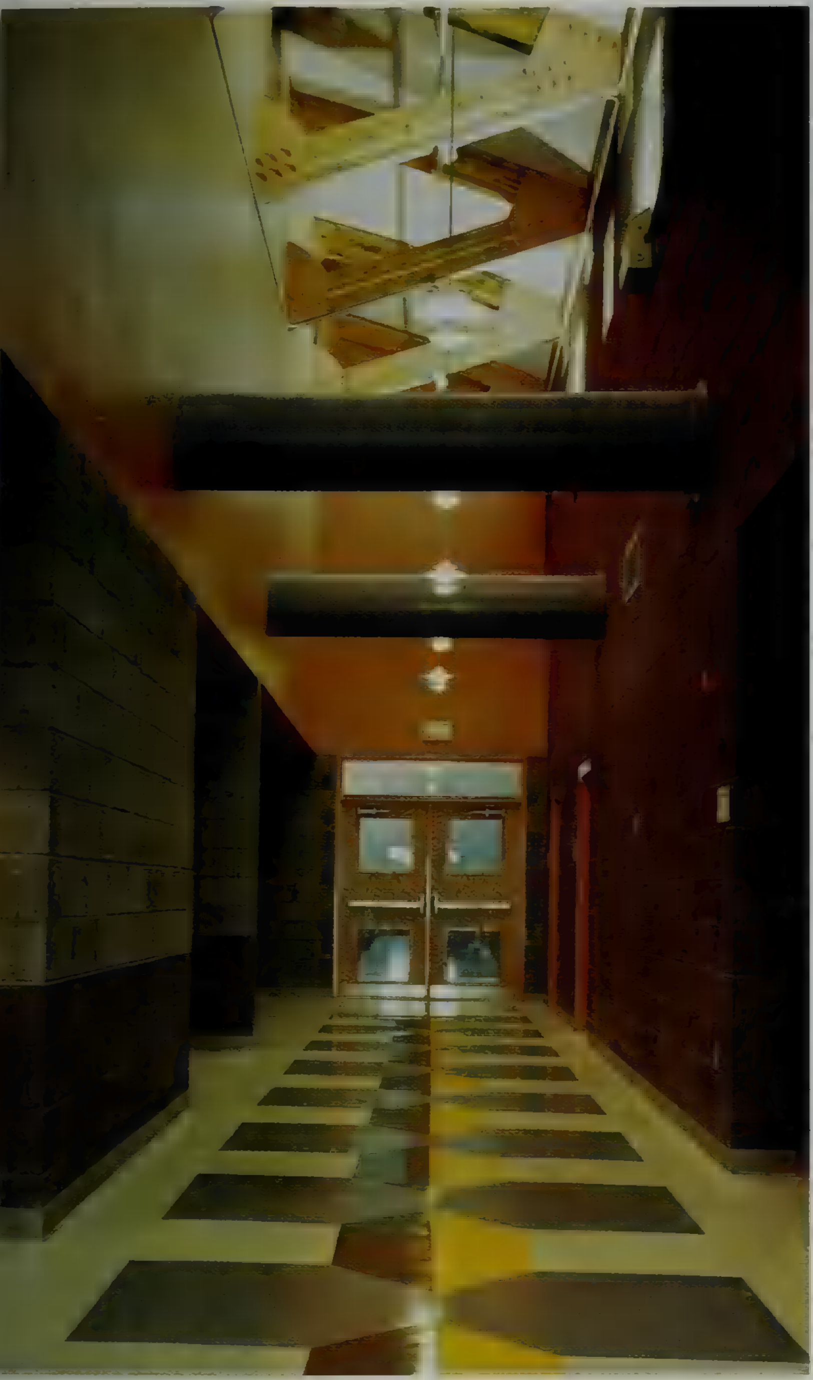
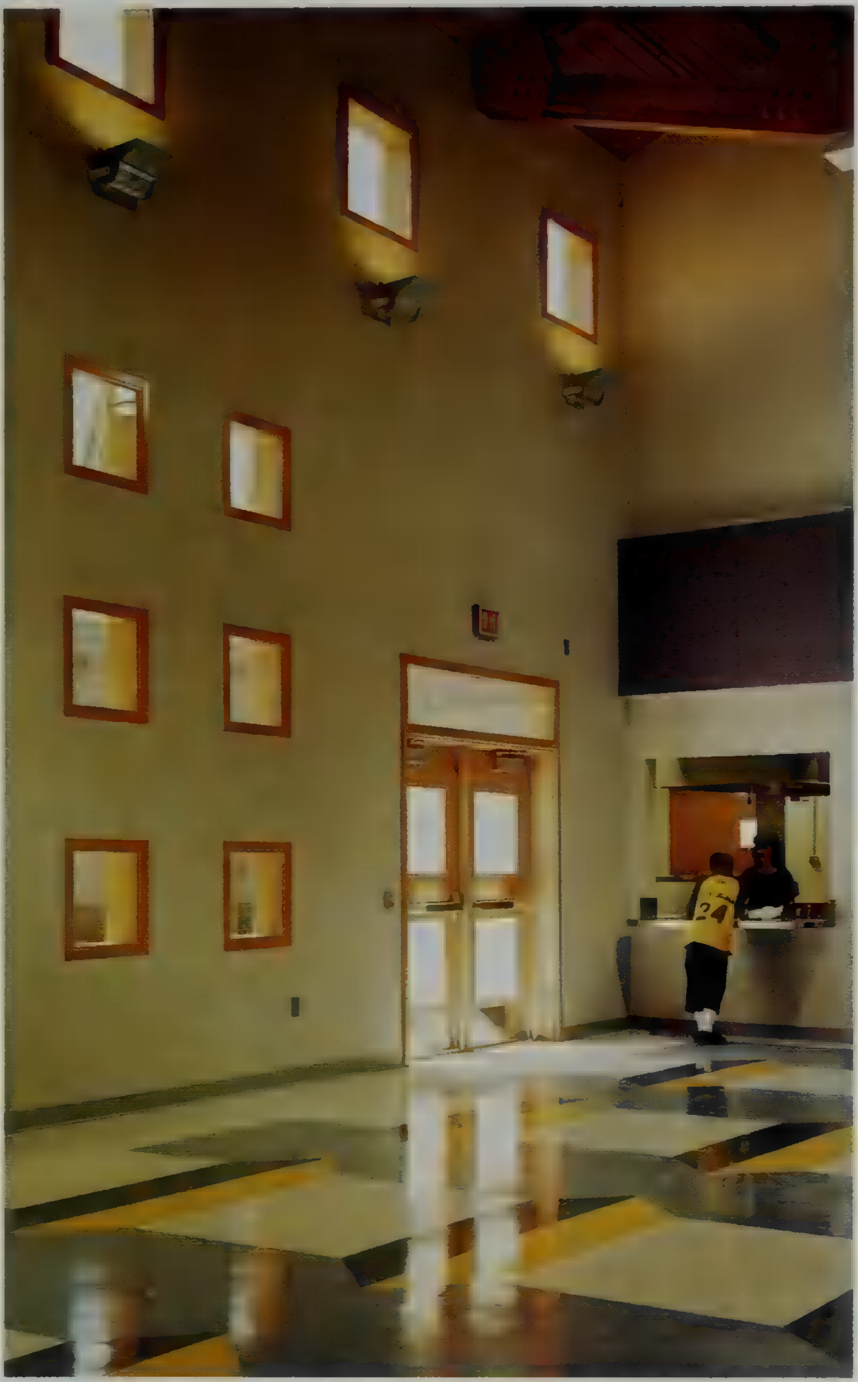
The principal entrance on the north side gives on to a courtyard (above and opposite). Since security is an issue, the solid, high outside wall allows facades to admit light through square window openings and a pattern of glass block which, together with alternating colors and textures of CMUs, helps break down the scale. Each key entrance is marked by a steel canopy.



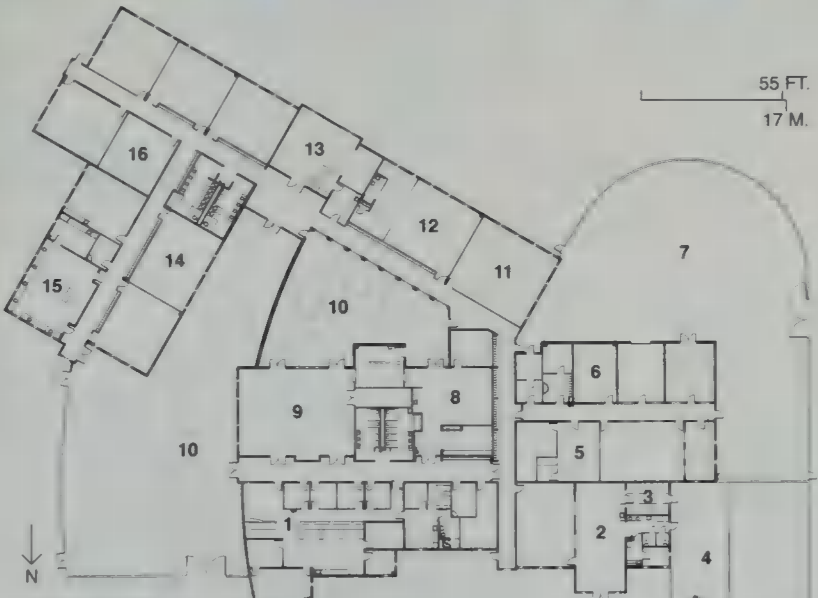
The section (below) shows bowed roofs over two key spaces, the activity center and the library. The roofs are supported by glued wood trusses with steel gusset plates, and covered by standing-seam sheet metal. Natural light from exterior walls enters through glass blocks, supplemented by clerestory windows that punctuate the main corridor; library, and assembly are (opposite page). The architects originally wanted to paint me surfaces red, but settled for salmon to avoid fading in the strong sunlight. Service networks, from air ducts to conduits, are exposed. Standa acoustic treatment has left su spaces as the activity center excessively reverberant.







1. *Administration*
2. *Daycare*
3. *Nursery*
4. *Play yard*
5. *Drafting*
6. *Maintenance*
7. *Service yard*
8. *Work room*
9. *Activity center*
10. *Secured courtyard*
11. *Business vocations*
12. *Medical vocations*
13. *Library*
14. *Computer lab*
15. *Science lab*
16. *Classrooms*



Credits
Horizon High School East
Clark County School District
Las Vegas, Nevada
Architect: *Tate & Snyder Architects—William E. Snyder, principal-in-charge; Jonathan Rappel, project architect; J. Windom Kimsey, design architect; Mario Reyes, Mike Andersen, Jon Drake, Shelly Hayden, Patti Wills, Ziao Tran, project team*
Engineers: *Drottar-Priniski Consulting Engineers (structural); JBA Consulting Engineers (mechanical, electrical); CRS Consulting Engineers (civil)*
Consultants: *Southwick & Associates (landscape architect); William Caruso & Associates (food service/kitchen)*
General Contractor: Sletten Construction of Nevada

All in One

An Ohio town consolidates its entire school system into one human-scaled complex.

ry Community Education Village
ry, Ohio
kins & Will/ Burgess & Niple
ociated Architects

By Nicolai Ouroussoff

Perry, Ohio's, education village, designed by Perkins & Will, is a monument to rationalism set against the sweep of the flat midwestern plains. Three distinct schools and a sports complex—the town's entire school system—are planted amidst acres of tree nurseries, and are cut in two by a quiet, winding creek. In the near distance, the cooling towers of a new nuclear-power plant loom under an immense sky.

The project, in fact, began with the nuclear plant. In a trade-off long accepted as a way to convince communities to accept the menacing plants, city officials often get high tax revenues in exchange. "[In Perry,] the nuclear power plant provided the funding for the facility," explains Ralph Johnson, Perkins & Will's principal designer, "They put it in a lower-income community, which decided to replace their entire existing school system [with the new revenues it generated]."

The $90-million project was built in two phases. In the first phase of construction, the high school, a high-tech theater, and a community sports facility form a compact compound on the west side of Red Mill Creek. Later, the middle and lower schools were built along the other bank. "There was farming here on either side of the creek, and we left all the tall trees," says Johnson.

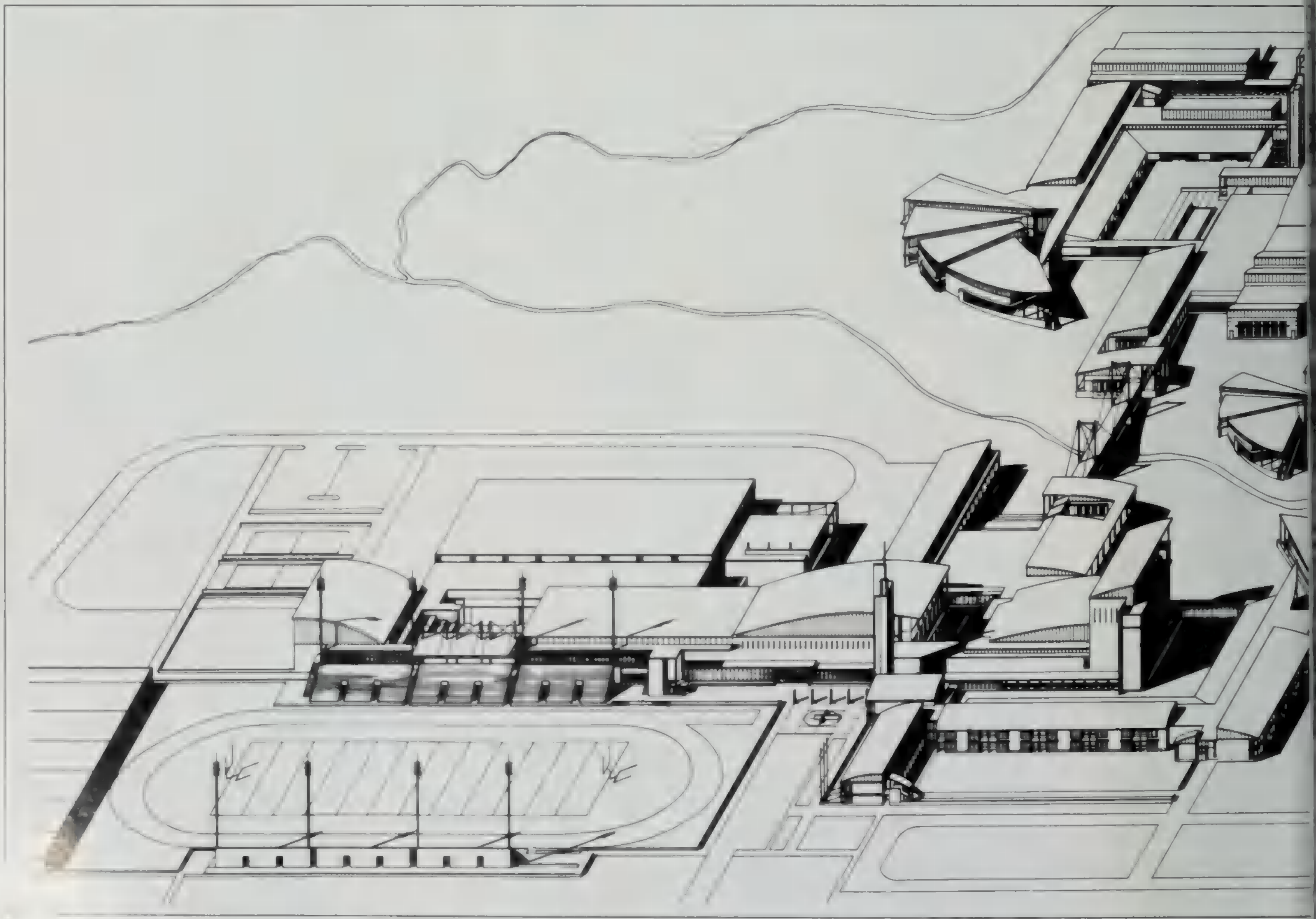
The "education village" concept was conceived as a way to reduce costs. By combining three schools into one campus the schools coul share power output from a centralized plant, use the same the gym sium and theater, among other facilities. "The benefits of shared education were also considered. For instance, qualified grade-scho students now have access to high school courses," points out Johns

Nicolai Ouroussoff is a New York City-based architectural writer and a frequent contributor to ARCHITECTURAL RECORD.

Despite the apparent density of the 650,000-square-foot project, th three schools are in some ways virtually independent. The lower school is nestled off to the north side of the middle school—with a separate pick-up area for children, while the middle school and hig school are timidly bound together by a narrow suspension bridge. the children grow up, they weave themselves deeper into the heart the project. "There was a conscious effort to separate the project i two worlds," says Johnson, "There's a sense of transition as you gr up. And there's a strict hierarchy that follows through the project."

The massive sports complex borders the southern edge of the high school, and includes a 3,000-seat stadium and a 119,000-square-foot physical-fitness center with a fieldhouse, dance rooms, gymnasium, and a pool. A suspended press box flanks the playing field, emphasi ing its importance to the community.

The enclosed, pedestrian bridge allows for carefully integrated common ground. The bridge is anchored at each end by twin cafeterias. A centralized kitchen unites them, and HVAC utilities used in common are "rolled" across the bridge. Mechanical systems are sus



nded underneath. “You can start doubling up on functions so there
some economy,” says Johnson. The central spine continues from the
idge beyond the high school dining area to the main theater/audito-
um, which is shared by all the students on grand occasions. It is a
nterpiece of the complex, equipped with a 90-foot fly loft.

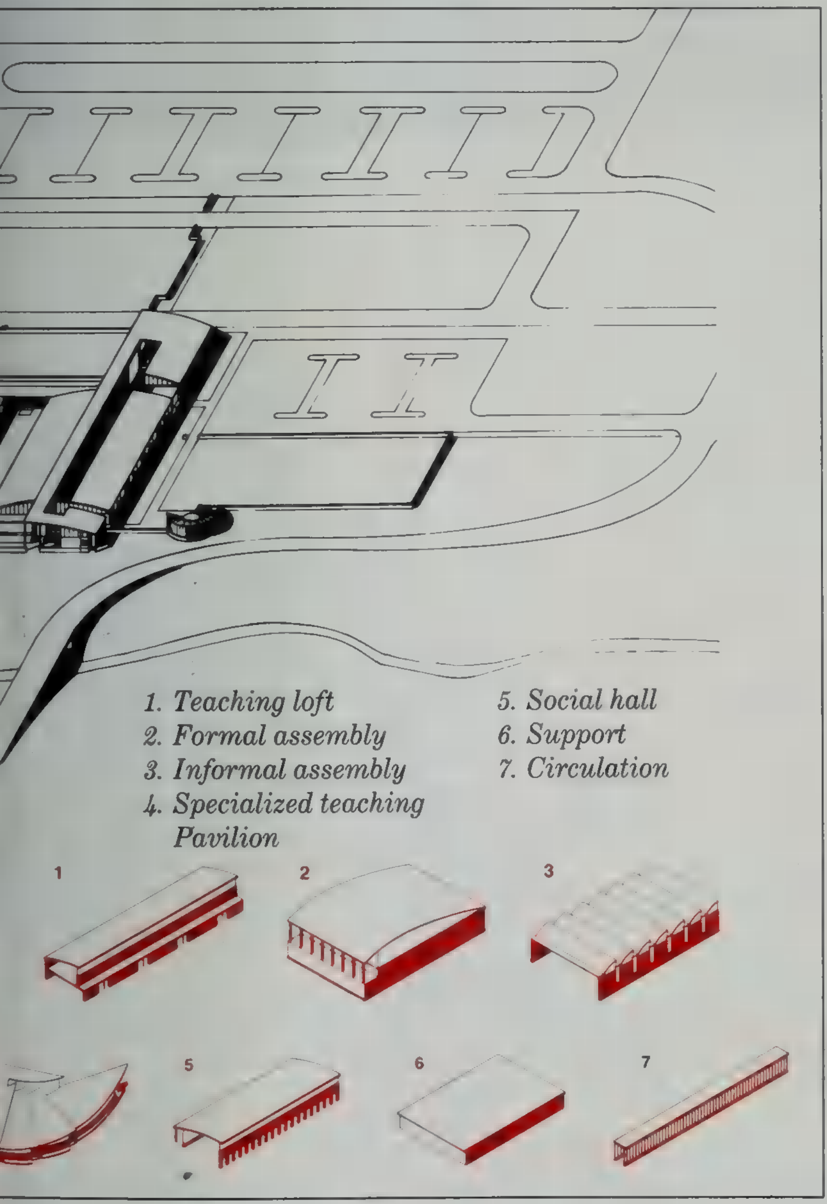
e sense of shared space—and even of a shared, almost formalized,
ission—is reinforced by the use of a “kit-of-parts” that establish
cognizable typologies for the various buildings—a feature that has
me to mark the firm’s uniqueness (see *Up Close, right*).

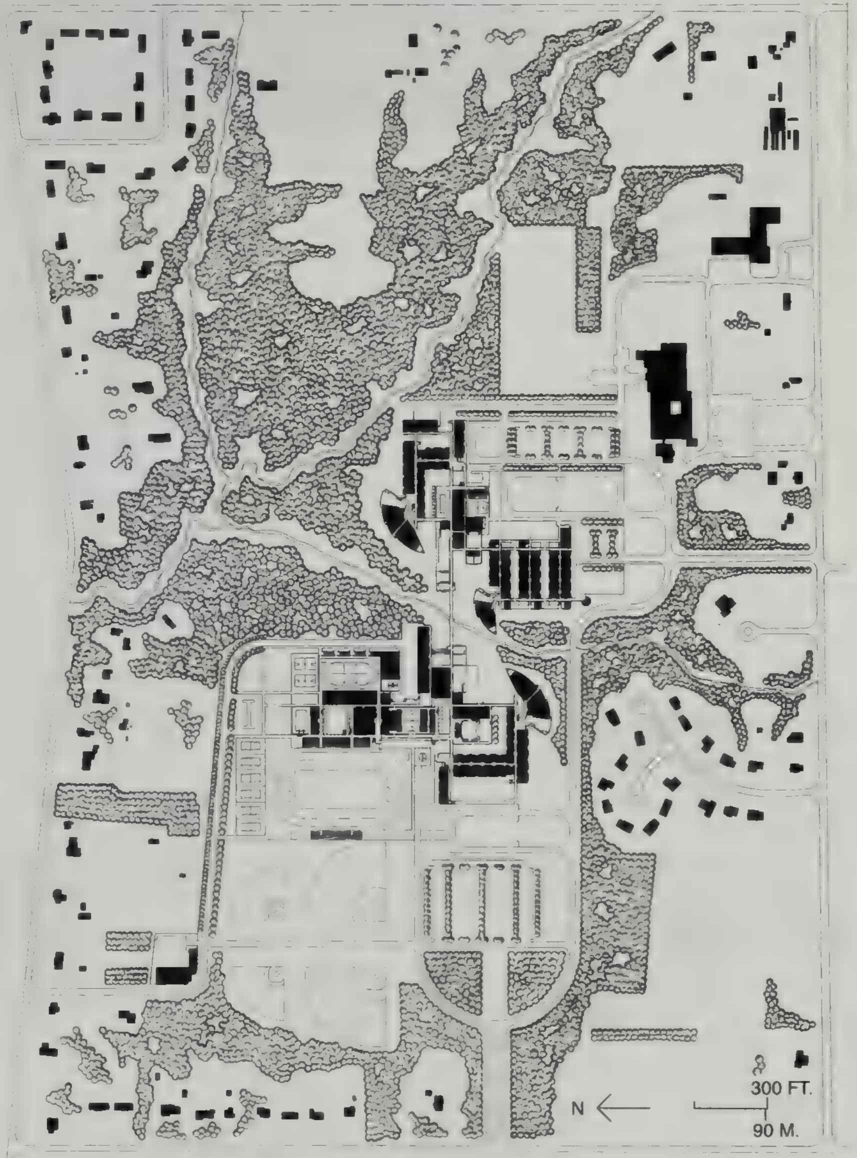
e use of clear typologies is an approach the firm has used else-
ere: in Singapore, a similar school project draws from indigenous
chitecture to create a roofscape that marks the functions of the dif-
rent buildings. “The roofs there are more dramatic, and their forms
e designed to cope with the heavy rains,” says Johnson. (In Singa-
re, the architects likewise had to cope with consolidating an entire
hool system on one site.)

t here, the forms are starker and more economical. They were
spired by the long industrial buildings that line the Erie river, in the
art of America’s rust belt. The project’s most whimsical gesture is a
in tower that marks the entrance to both the theater and the physi-
l-fitness center. The tower stairs spin up to a viewing deck
erlooking the landscape. “It’s kind of a counterpoint to the cooling
wers of the power plant,” explains Johnson.

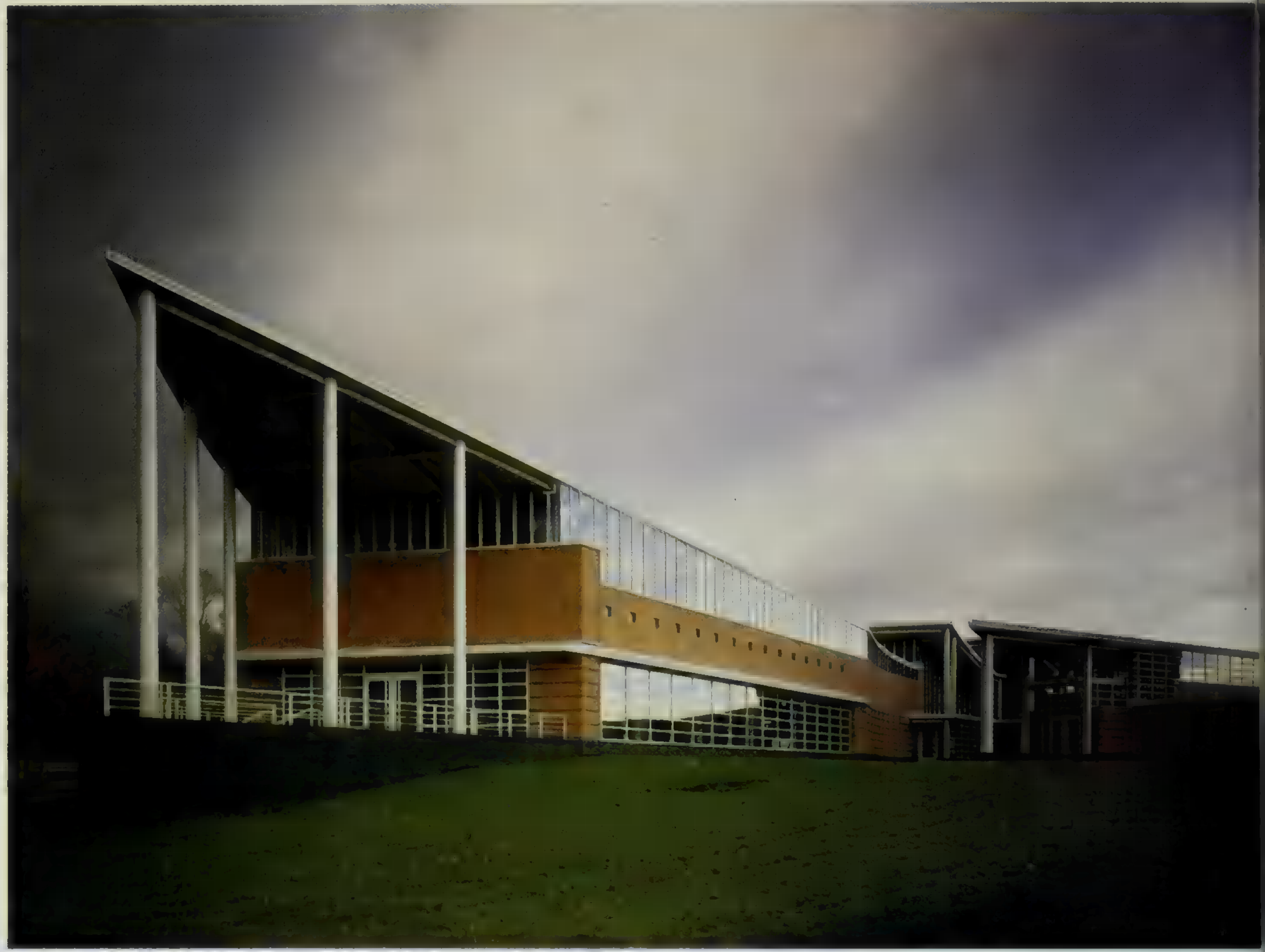
Up Close

Economy and consistency. Perkins & Will tended to use similar forms for buildings of similar function (see site plan), achieving both design consistency and construction economies. For instance, classrooms in all three schools are designed as if they were cut from a continuous length of repetitive structure. These are given a distinguishing identity by elegant curved bar joists, exposed overhead by raising the ceilings above them. Each type of form establishes a linear structural rhythm. The more public assembly buildings—the gymnasiums and theater—are designed with bowed roofs, which lift gently on one side. Only the three arts halls take on a more plastic form. The sickle-shaped buildings—which house libraries, art, and music rooms—swirl loosely out of a corner of each school. Their organic shape allows them to mediate between the harder-edged buildings and the weaving creek and lines of trees that run through the core of the project. The arts halls become a buffer between nature and rigorous order. All forms weave together in a subtle interplay of common and shared spaces.





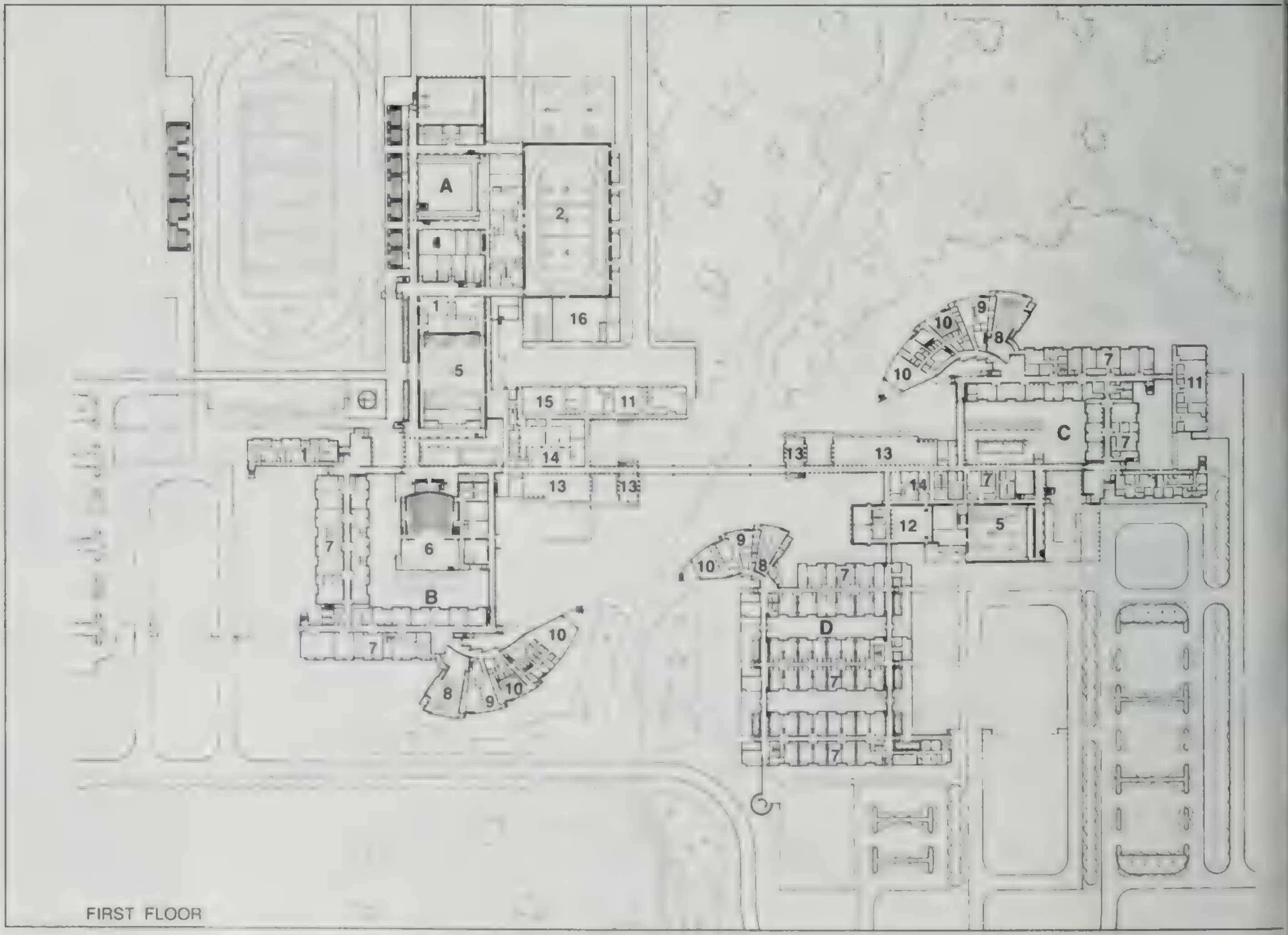
©Nick Merrick /Hedrich-Blessing photos

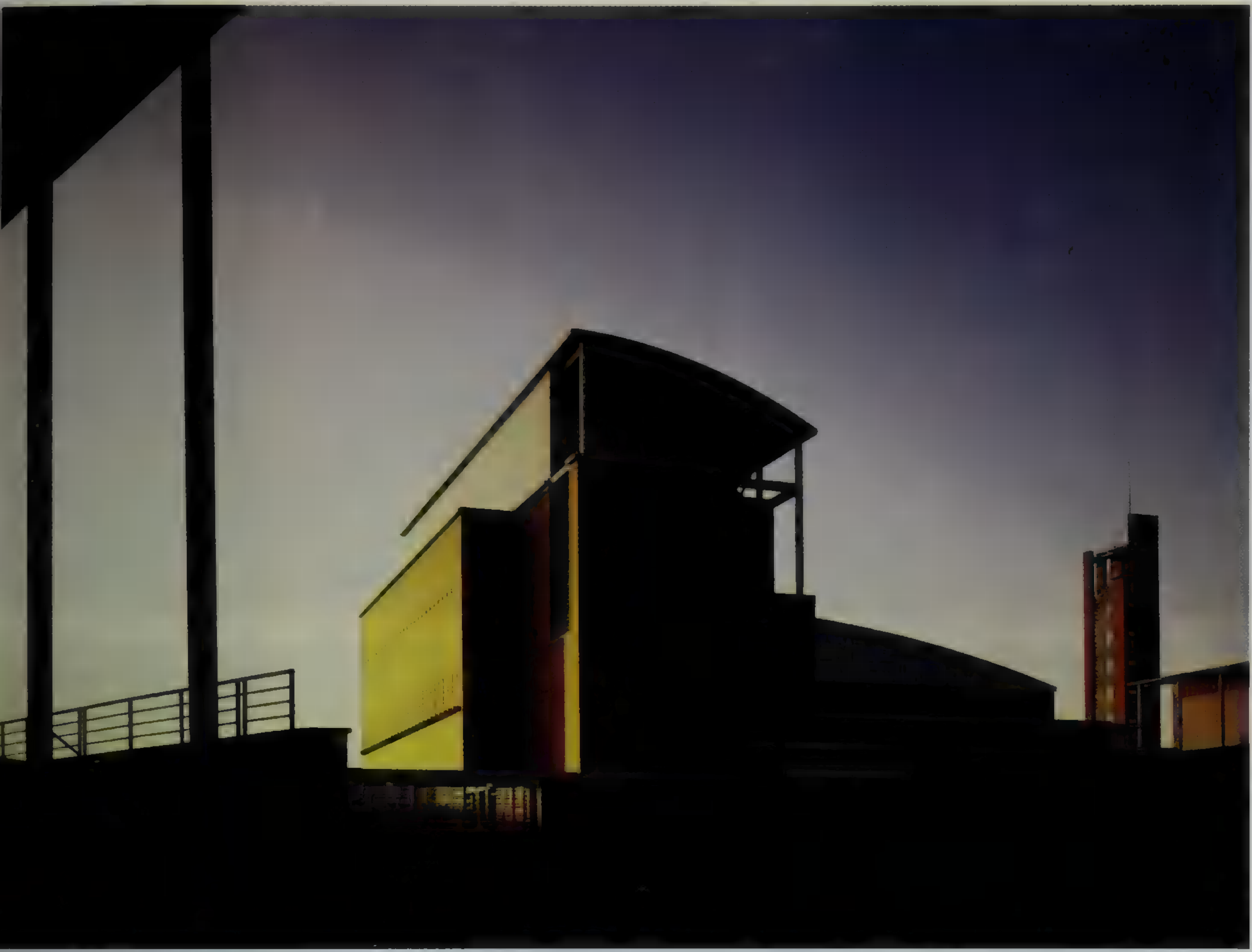


Five slender two-story columns support the tip of the fan-like arts building. The enclosed terrace can be used as an outdoor platform for the school band. The formal music rooms are inside—each of the three arts buildings also includes art rooms and a library. In the background, the building locks into the tip of one of the classroom wings. Trees and a creek lie beyond.

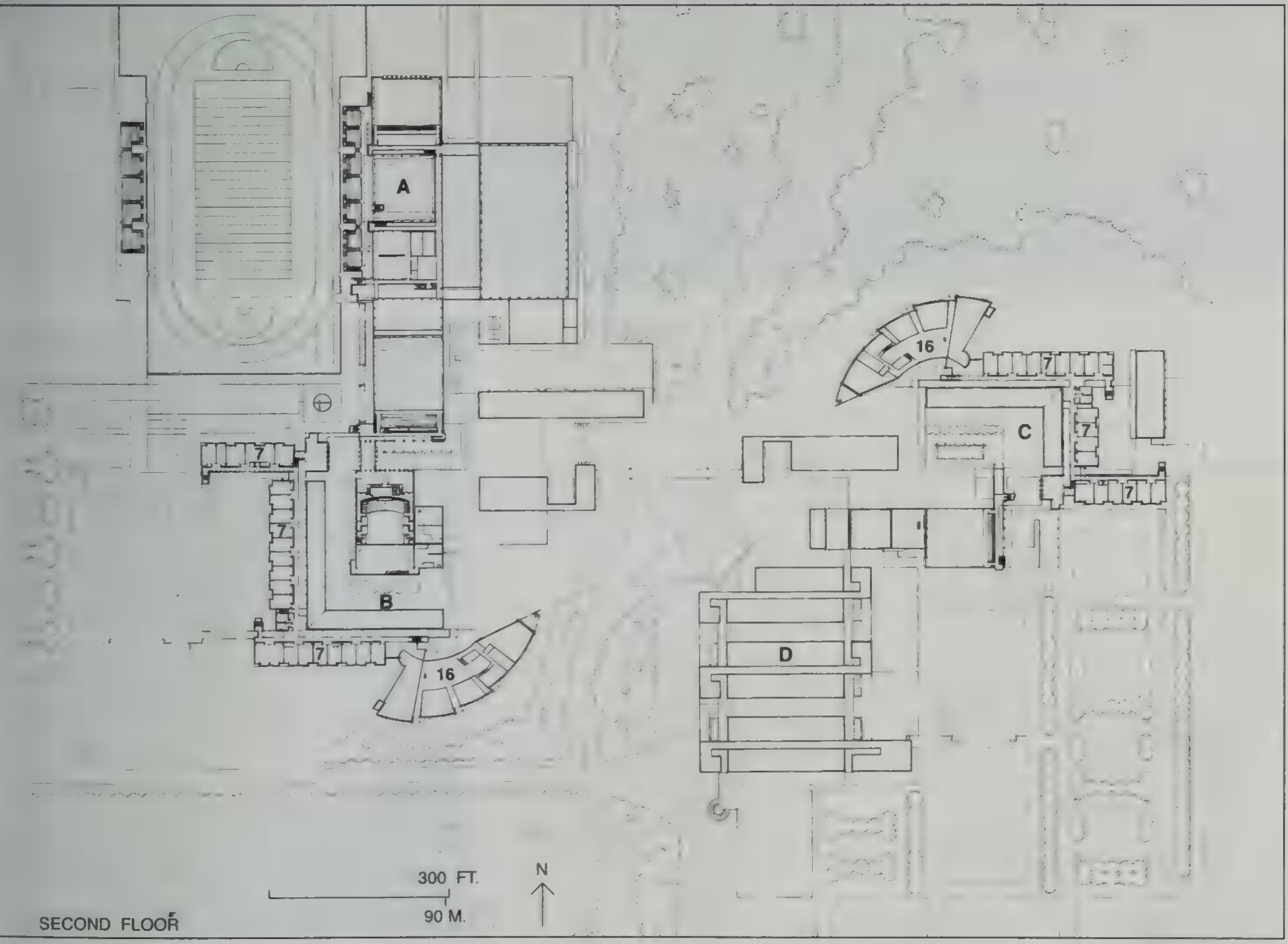
A Fitness center
B High school
C Middle school
D Elementary school

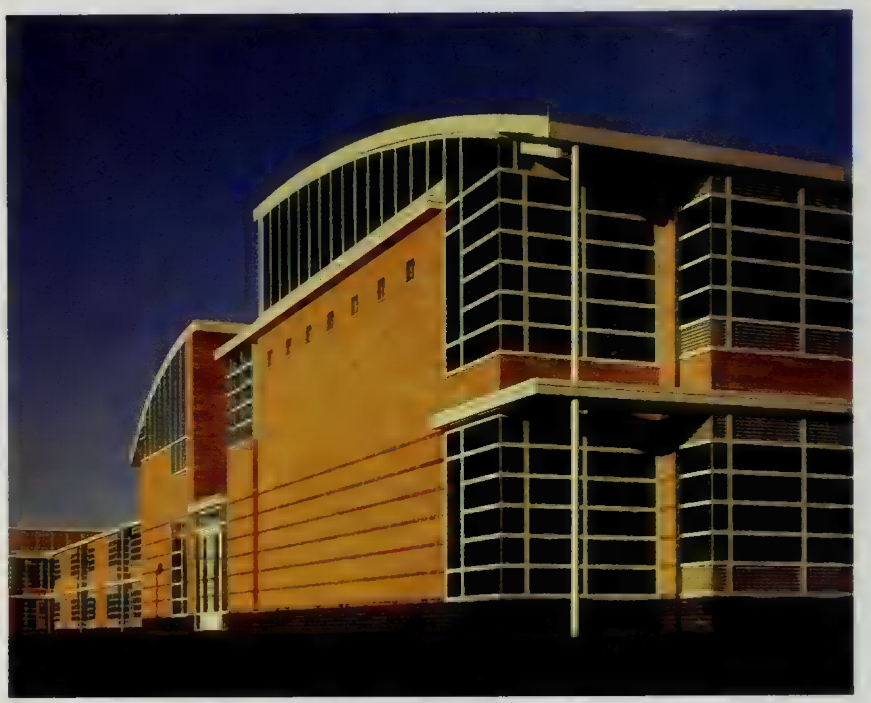
1. Administration
2. Fieldhouse
3. Pool
4. Dance
5. Gymnasium
6. Theater
7. Classroom
8. Library
9. Art
10. Music
11. Industrial art
12. Multipurpose
13. Dining
14. Kitchen
15. Receiving & Maintenance
16. Mechanical





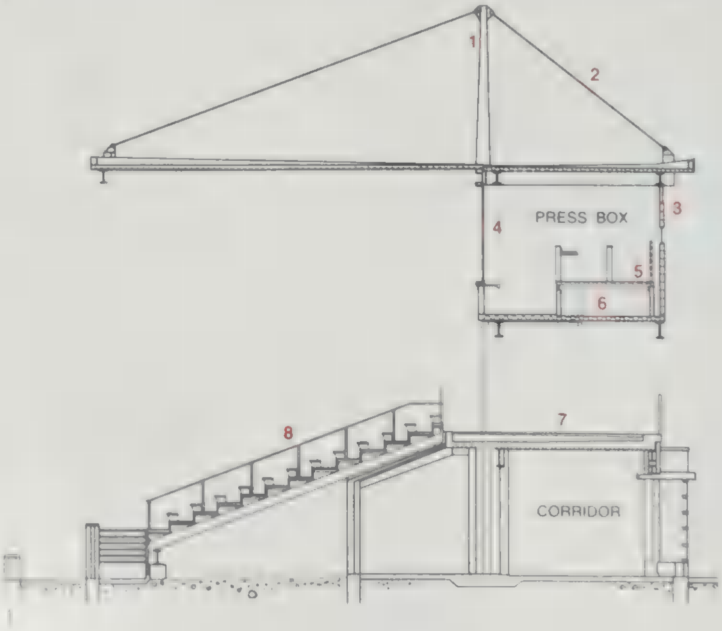
The massive, 90-foot flyloft of the Goodwin theater dominates the view and anchors the upper school. The low, curving structure to the right is the theater itself. In the foreground are the columns of the bandroom terrace, while the slim entry tower to the west campus is visible to the far right.




1

2

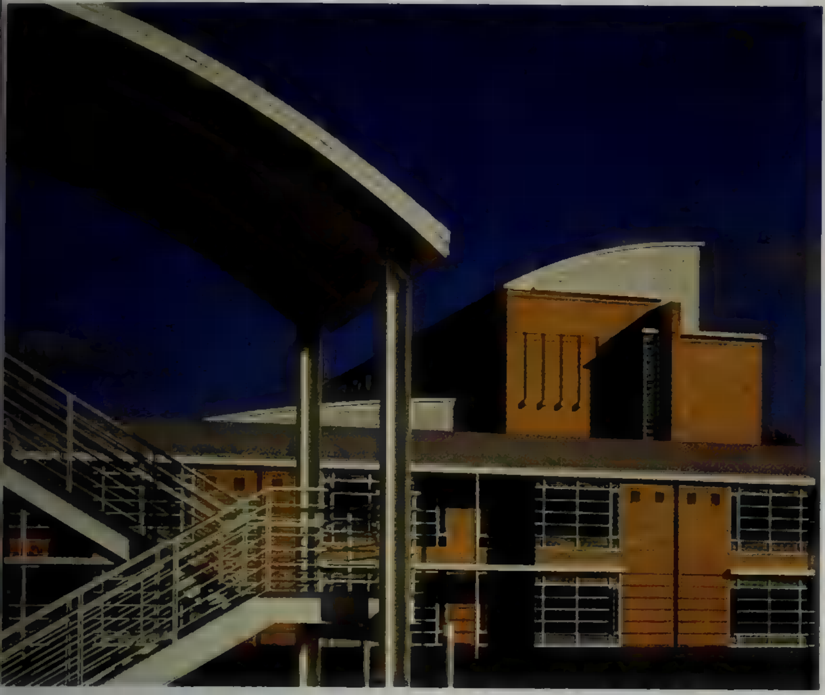
3

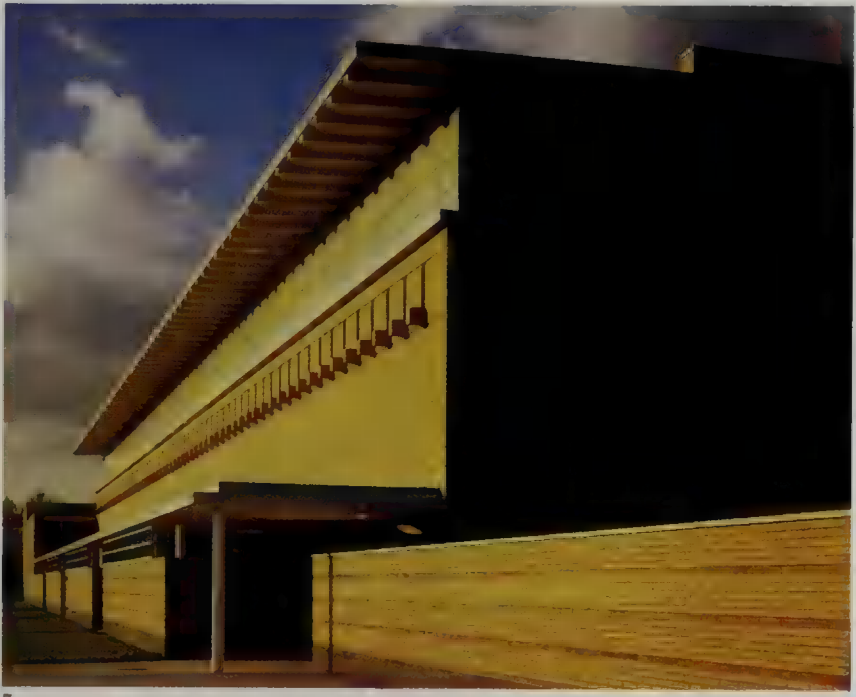


4

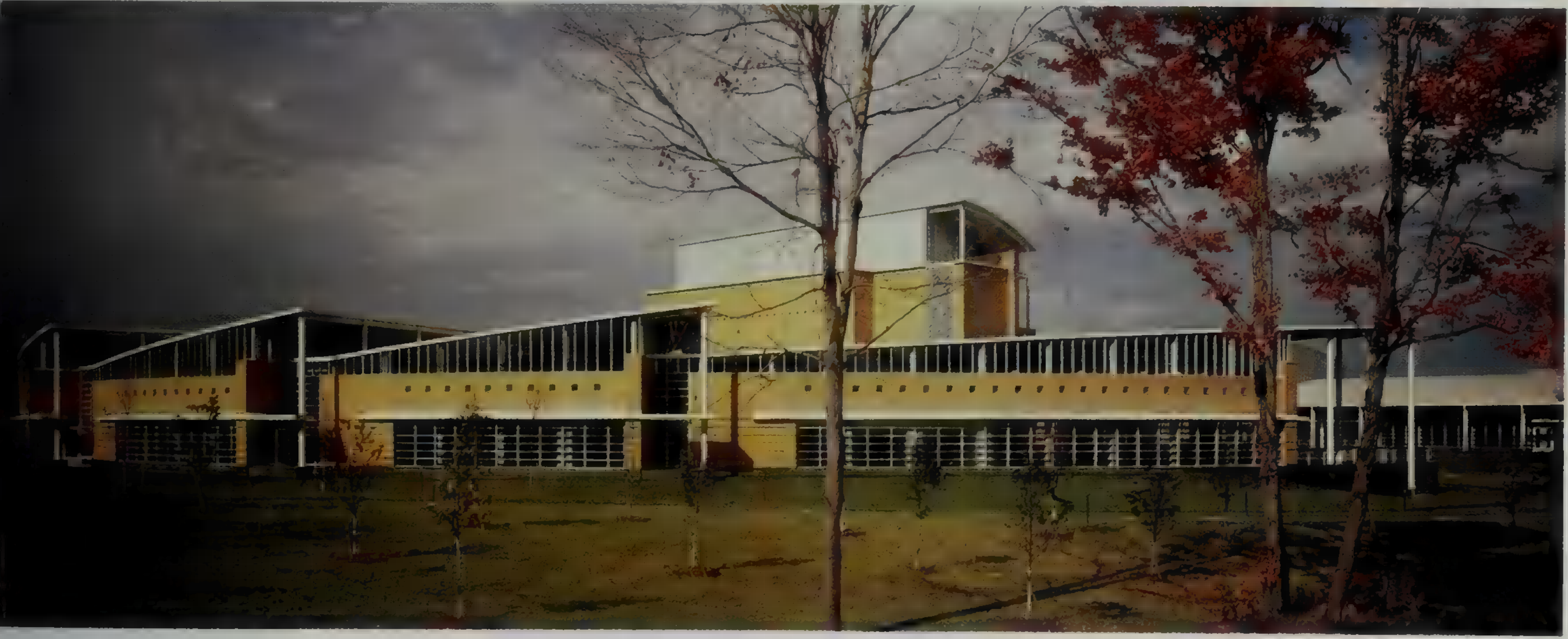
1. *Steel column with tapered web*
2. *Suspension cable*
3. *Aluminum curtain wall*
4. *Sliding window*
5. *Concrete slab on metal deck*
6. *Mechanical heating unit*
7. *Precast concrete pavers on rigid insulation*
8. *Prefabricated metal bleachers*

5



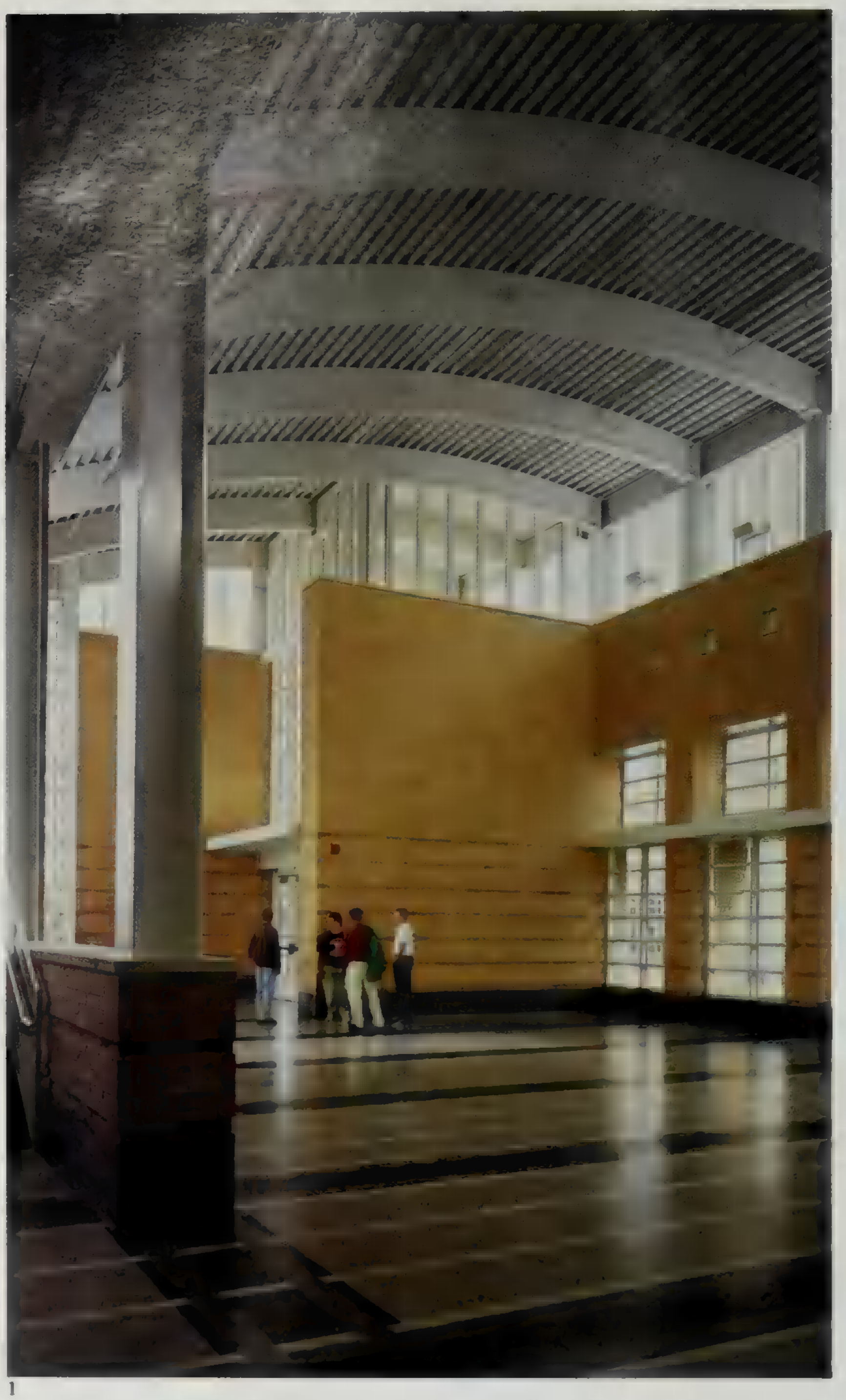


7

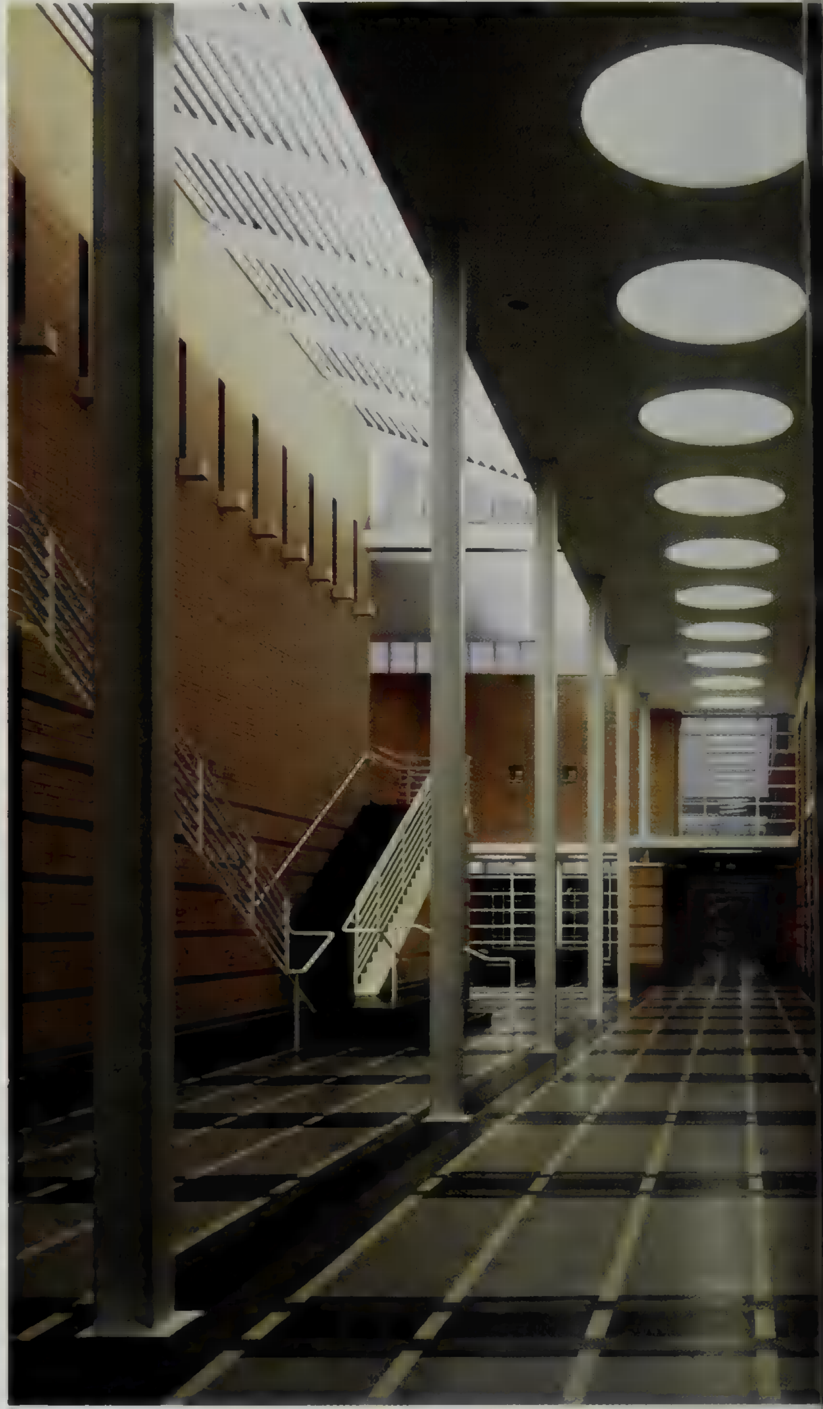


pposite: The end of one of the assroom wings, with enclosed air and wrap-around corner ndows (1), is reminiscent of a ropius industrial building. ominating the front facade of e high-school gym (2) is an erhang that protects the erestory windows overlooking e bleachers inside. The Perry mmunity Education Village's trance (3) includes the field use (far left in photo). The rved element in the back- ound is the indoor swimming ol. The central courtyard of e high school (5) is flanked by ssrooms and the theater. In e background is the entry tower. The section shows the press box and the bleachers of the football stadium (4).

This page: The outdoor staircase is at the far end of a classroom wing. In the background is the theater flyloft (6). The entrance to the fieldhouse has an overhanging metal roof. (7). The fan-shaped high-school arts building (8) has interlocking pitched roofs. The library is at the far left in the photo, followed by art rooms (center), and boardroom (right).



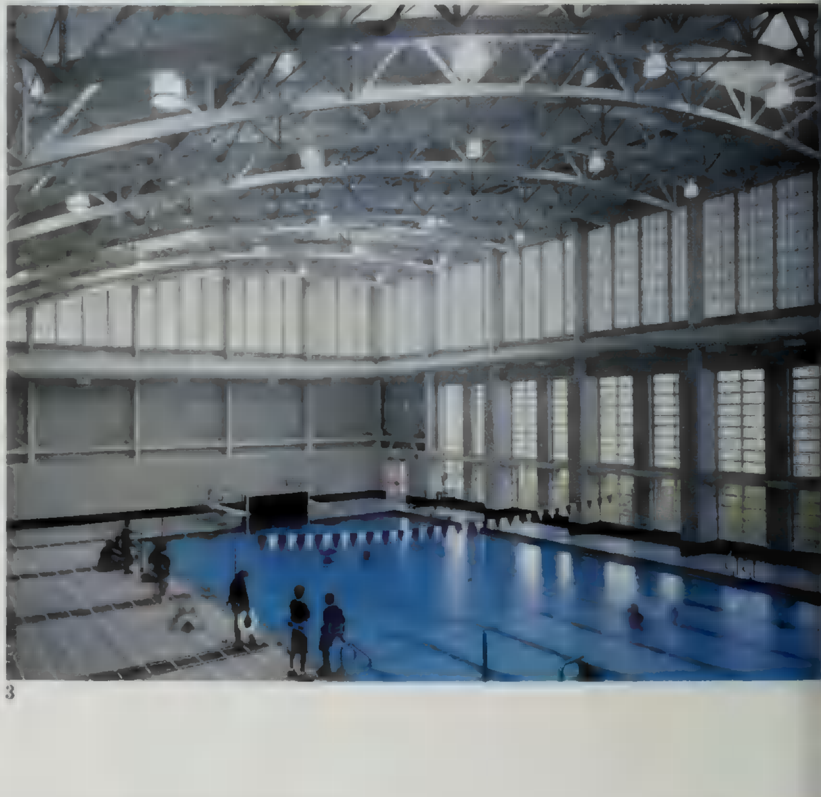
1



2

The interiors of the complex are high-ceilinged and expressively functional. They include the double-height high-school lobby with its structural deck and corrugated metal roof (1). Equally utilitarian yet airy is the lobby of the Goodwin Theater (2). On the left are stairs leading up to the balconies. The swimming pool (3) is lighted by clerestory windows made of translucent fiber-glass panels.

Opposite: Perry Community Education Village's sports complex includes a 119,000-square-foot physical-fitness center. Part of the complex is the high-school gym(4), with a lobby and second-story balcony where a corridor opens up onto the gym bleachers. In the music complex (5), a clerestory windowed corridor leads back to the bandroom, seen from the end of the classrooms. The library is to the right. The windows on the left look out into a courtyard. A third building in the complex is the main high-school gym (6), including a basketball court and bleachers (to the left).



3

5

Credits
Perry Community Education Village
Perry, Ohio

Associate Architect: *Perkins & Will—C. W. Brubaker, principal-in-charge; Ralph E. Johnson, design principal; James G. Woods, Raymond C. Bordwell, project directors; James Nowak, senior project architect; Michael Palmer, project architect; August Battaglia, Jerry Johnson, Greg Bennett, Celeste Robbins, Bill Schmalz, Steve Roberts, Randy Takashashi, Anitia Ambriz, design team*

Associate Architect: *Burgess & Niple—Jerry L Keltch, principal-in-charge; Raymond P. Corby, project manager; Timothy D. Clapper, construction supervisor; James W. Alban, construction project manager; Robert Macholl, structural engineer; Joel Altland, mechanical engineer; Douglas Powell, electrical engineer*

Consultants: *CINI-Little International (food service); Jerit/Boys (theater); Kirkegaard & Associates (acoustics); Construction Cost Systems (costs)*

General Contractor: *Albert M. Higley Company*

chool Spirit

P.W. Johansen High School
Modesto, California
Wolff/Lang/Christopher Architects

n the burgeoning community of Modesto, California, outgrew its
ur high schools, it made the predictable decision to build a fifth,
t added an unexpected element to an already complex building
ogram of academic and recreational facilities: a community center.
ocal support for the new school-cum-town-center was over-
helming: in 1987 a $75-million bond issue passed by 72 percent.

he site, a 100-acre parcel bounded by almond and peach orchards,
thin the rural Empire area, is relatively isolated, allowing the
chitectural firm of Wolff/Lang/Christopher to design a complex that
ould “reinforce the community's agricultural heritage,” according to
incipal-in-charge Gaylaird Christopher. The architects retained a
e-acre preserve at the school's entrance and a 20-foot-wide buffer
trees around the site, and designed a special underground storm
ater-retention area to compensate for the distance from town
ainage services.

acilities such as a county library, all-purpose theater, district foot-
ll stadium, Olympic-size swimming pool, tennis courts, and playing
elds were integrated into the 225,000-square-foot, $40-million P.W.
hansen High School, and were provided with separate access and
rking to permit use when school is not in session. “Public agencies
n't afford to duplicate services,” says Christopher of the combi-
tion of community and student uses. Giving a civic presence to the
mplex is a 70-foot-high tower that houses the original bell from the
strict's first school.

nagery for the building had to be both “traditional and exciting”
convey both community stature and educational energy, says
hristopher, so the architects devised two-story steel-frame volumes
ad in bands of brick arranged around an outdoor courtyard linked
walkways. Explains Christopher of the new hybrid: “It harkens
ck to schools of 50 or 60 years ago.” *Karen D. Stein*

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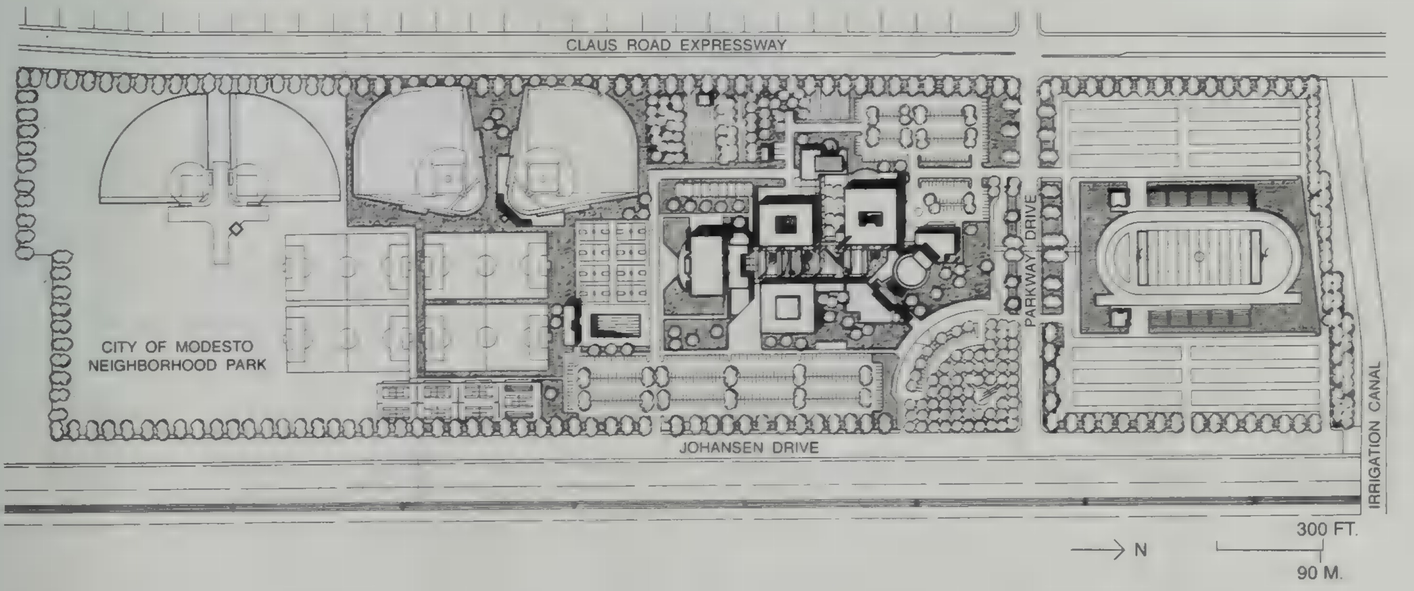
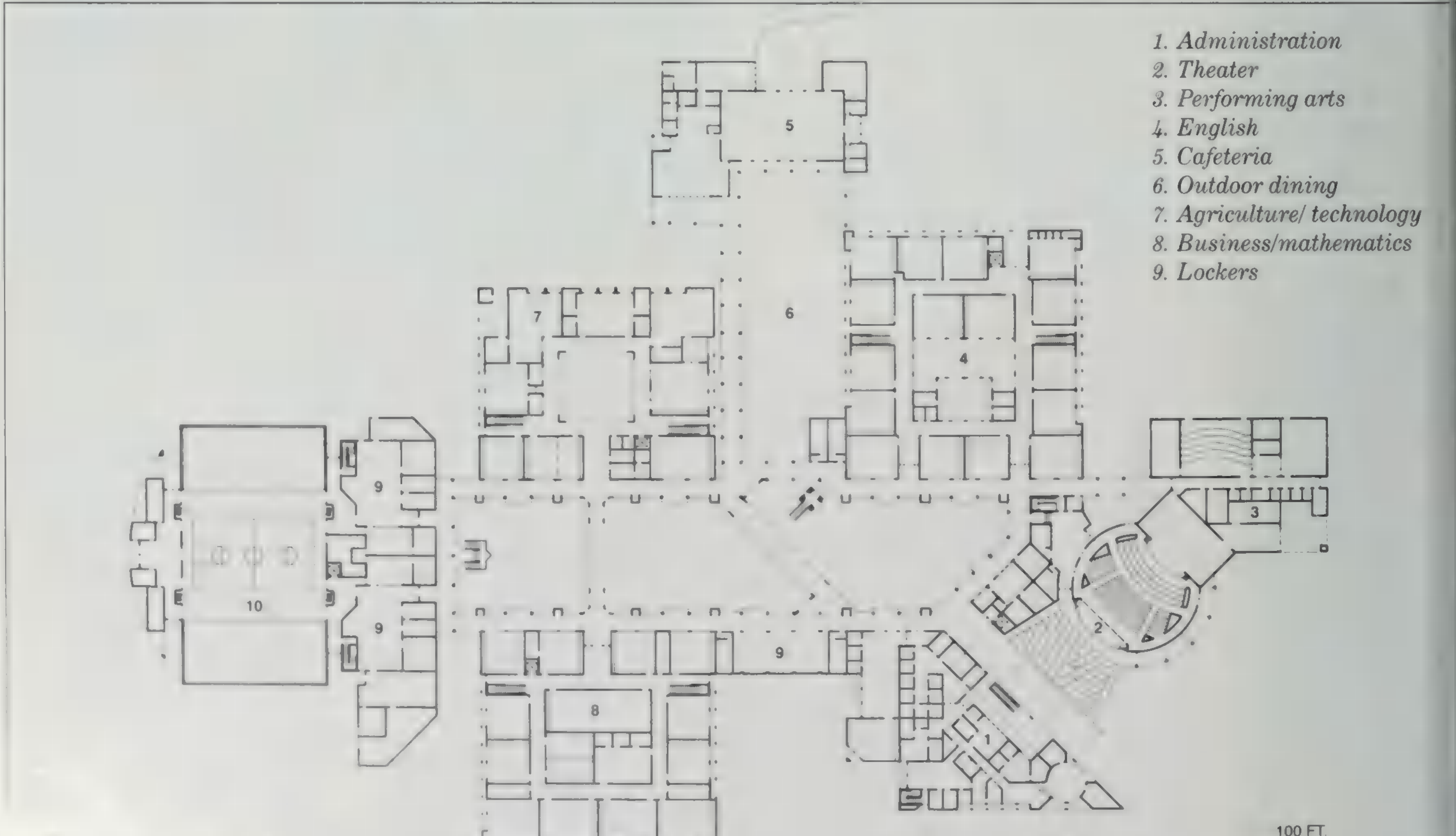


The gym (photos above and opposite left and plan below) is at the south end of the P.W. Johansen High School complex, adjacent to tennis courts and baseball fields which have separate parking lots to permit use by members of the community. The town's public library (opposite right) has also been integrated into the high school. Classrooms, departmental offices, administration, and an auditorium are dispersed among two-story blocks arranged around a central courtyard; a small food-service wing, which includes the cafeteria, is set off the back of the school. Architect Gaylaird Christopher of firm Wolff/Lang/Christopher says th striped brick exterior cladding meant to reinforce the horizontality of the complex on its agrarian site and its weighty role as "a community center in an otherwise isolated area."



its
Johansen High School
esto, California

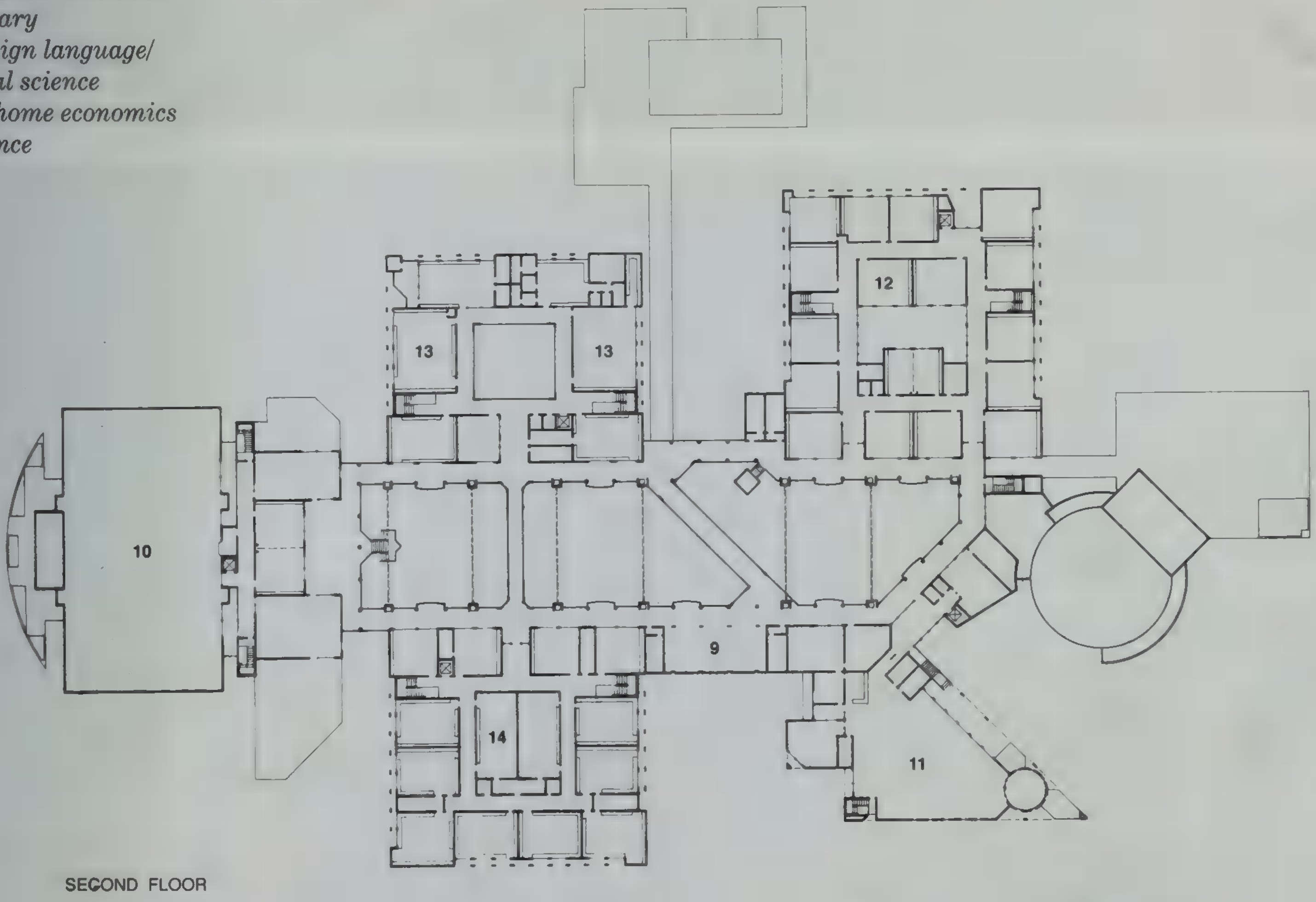
itect:
f/Lang/Christopher
itects—Gaylaird
stopher, principal-in-charge;
DiCamillo, principal;
ald A. Kuehl, project architect; Dave Forman, John Kristedja, Michael Merino, Rohit Shah, Bill White, project team

Engineers: *Lew-Garcia-Davis (civil); M/P Engineers, Inc. (electrical); F.T. Andrews, Inc. (mechanical); Johnson & Nielsen Associates (structural)*

Consultants: *Land Images (landscape); Designers Food Facilities (kitchen); John Von Szeliski & Associates (theater); Aquatic Design Group, Inc. (pool)*

General Contractor: *Roebbelen Construction, Inc.*

0. Physical education
1. Library
2. Foreign language/ social science
3. Art/home economics
4. Science



ndurance Test

William H. Lincoln School
Brookline, Massachusetts
Graham Gund Architects

am Gund Architects' start on this $10.3-million commission was :her easy nor auspicious. First, the firm had never designed an nentary school. And it was pitted against four competitors with ensive experience. While the other firms came before the selection ımittee with beautifully presented preliminary schemes for the -student facility, Gund's team had only a list of criteria gleaned ɔugh an exhaustive study of Brookline's seven other K-12 ools—many with long impersonal corridors, lightless spaces, and ɔverall forbidding character and institutional appearance. "It was re like a list of don'ts," recalls school-committee chairwoman :hleen Ames, "but it made us think. Gund's approach was open l creative, while the other firms came with set ideas. He gave ·ds to our thoughts about daylight and intimate spaces children ld identify with." He also had experience working with the tional Register (which had designated several buildings on the ·), and fitting new construction into historic neighborhoods.

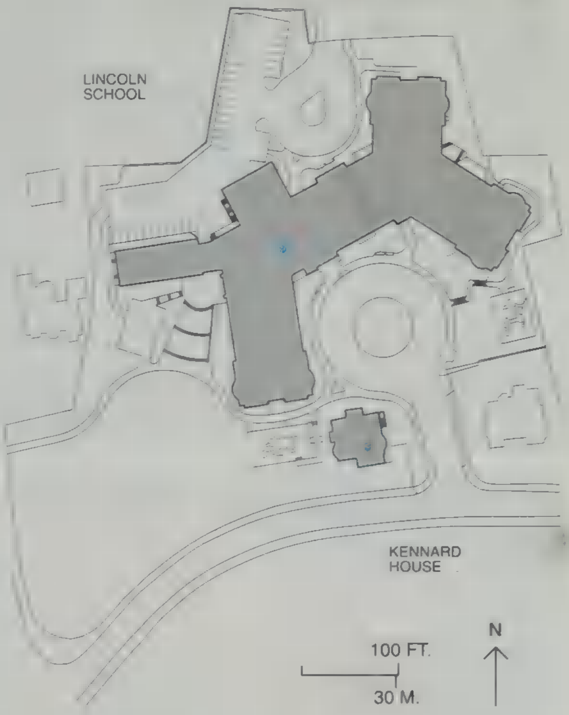
vas Lincoln School's current neighborhood of large older houses ıed by affluent and influential people that Ames had seen as the mbling block to relocating the facility from a site along a busy hway. Voters defeated two relocation referenda in the 1970s. They ·e not just rejecting an intrusion of institutional character, but the ıracter of the students as well. Not all of Brookline is affluent; re are two public-housing projects near this site. And busing from inner city increased neighborhood tensions. School principal ·bara Shea points out that Lincoln is one of the most ethnically and nomically diverse schools in the system, which she sees as a plus. ers finally gave in under threat of redistricting in 1980. It was now to Gund's team to begin the 14-year effort to convince them that at st the school building itself could be a good neighbor.

e architects worked with the National Register to get approval for ɔcating an historic stable that would become the new cafeteria ın overleaf) and for alterations to other site buildings, including a oclassic house, now used as a music school. At the same time, they ·eloped methods to reduce the visual impact of the 85,000-square-t building on the residential neighborhood. One part of the solution he "stick-man" plan with spreading "arms" and "legs" that assures ıt only part of the building is visible at any one time. The plan also luces straight runs of long corridors and groups students of similar ɛs in areas they can call their own. Another scale-reduction device he placement of many lower-grade classrooms behind dormers in large sloping slate roofs. This also gives younger students an ɔropriately low visual vantage point and provides familiar associa-ıs by means of spaces that resemble a house attic, albeit a very y one.

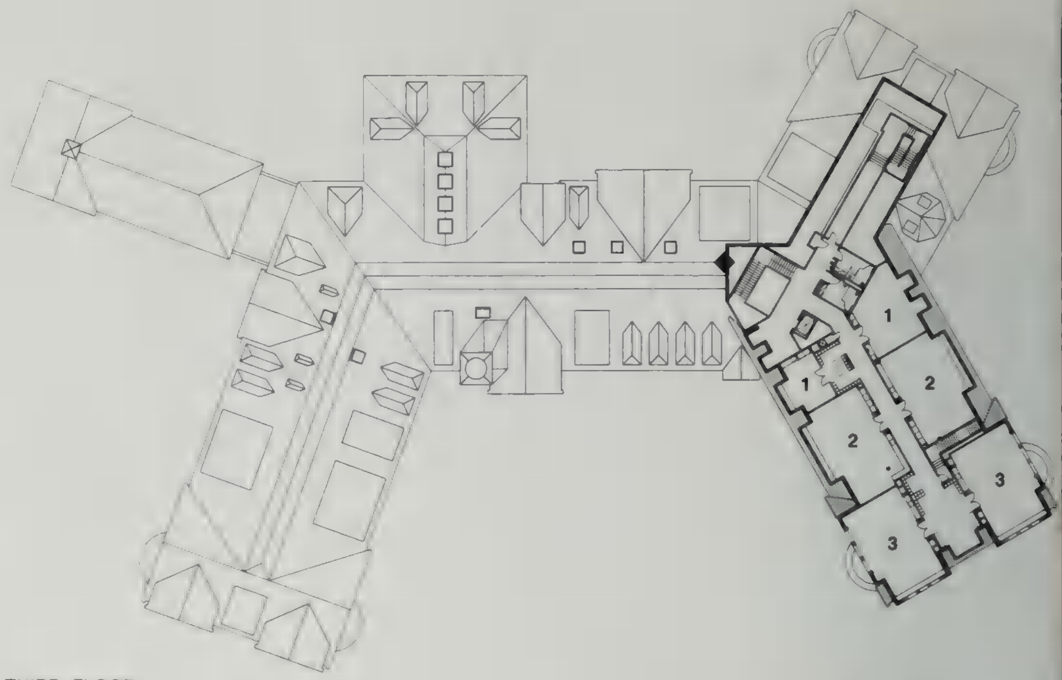
ıdemic performance has risen from among the Brookline system's ·est to its highest. "It's not all the building," says Kathleen Ames, ıt it certainly has helped." What do the neighbors think? Three of ɜm have donated land to increase Lincoln's playing fields.

arles K. Hoyt

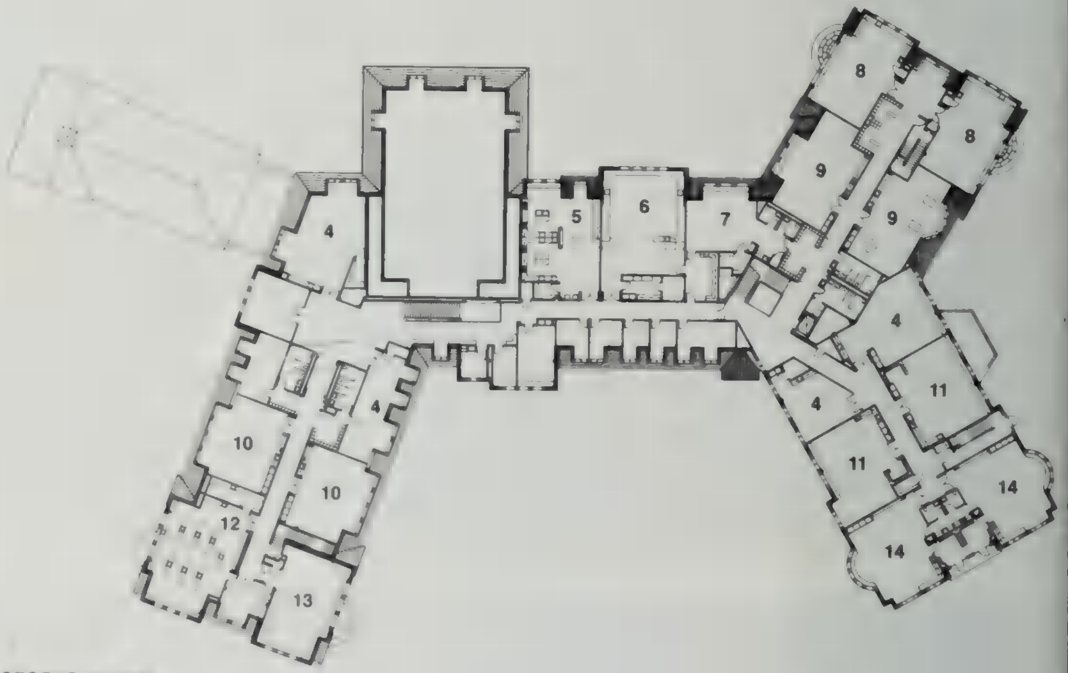
© Nick Wheeler Photographics



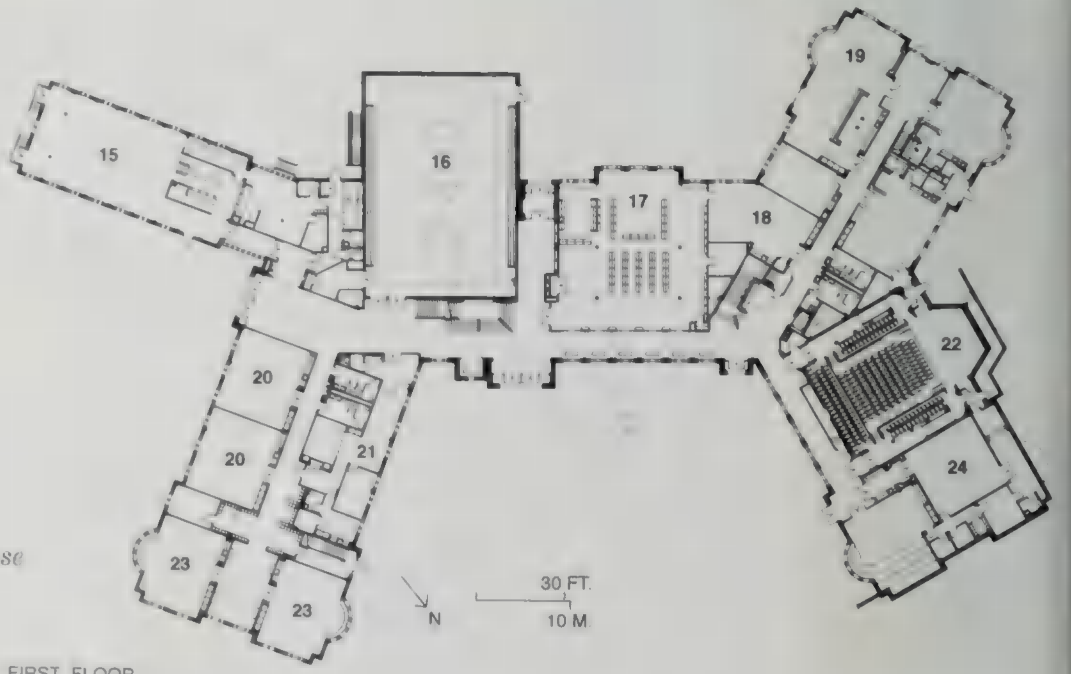
Like many schools today, Lincoln offers facilities for community use as well as children's education. Among them are spaces for adult language courses. With so many ethnic groups within the community, teaching parents English becomes as important as teaching their offspring. Lincoln's specialty is Russian-speaking parents. Both gymnasium and auditorium can be sealed off from the rest of the school for after-hours community functions. The layout of classrooms in grouped clusters allows the use of common multipurpose rooms at the ends of each corridor where students can share activities and remedial training.



THIRD FLOOR



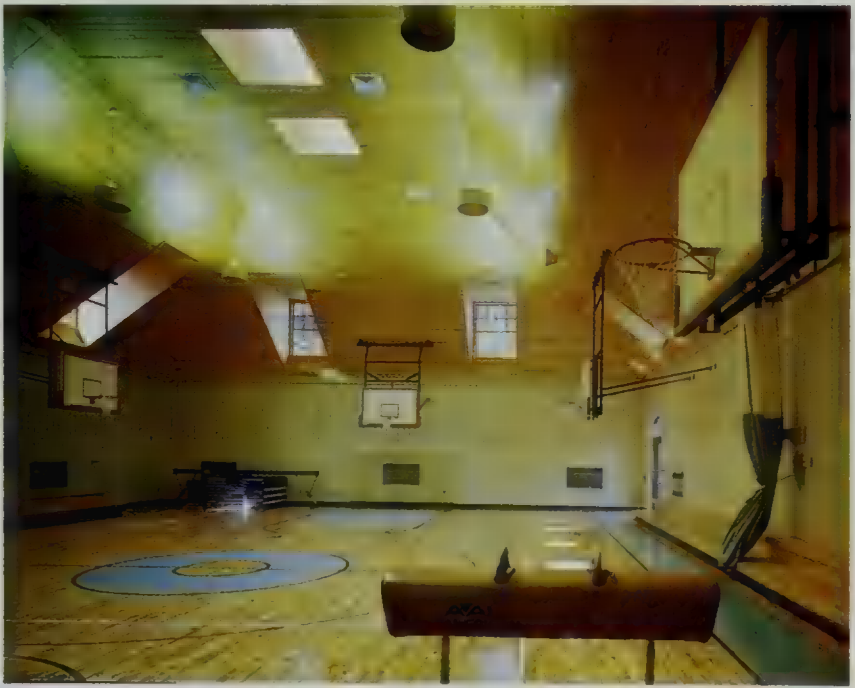
SECOND FLOOR



FIRST FLOOR

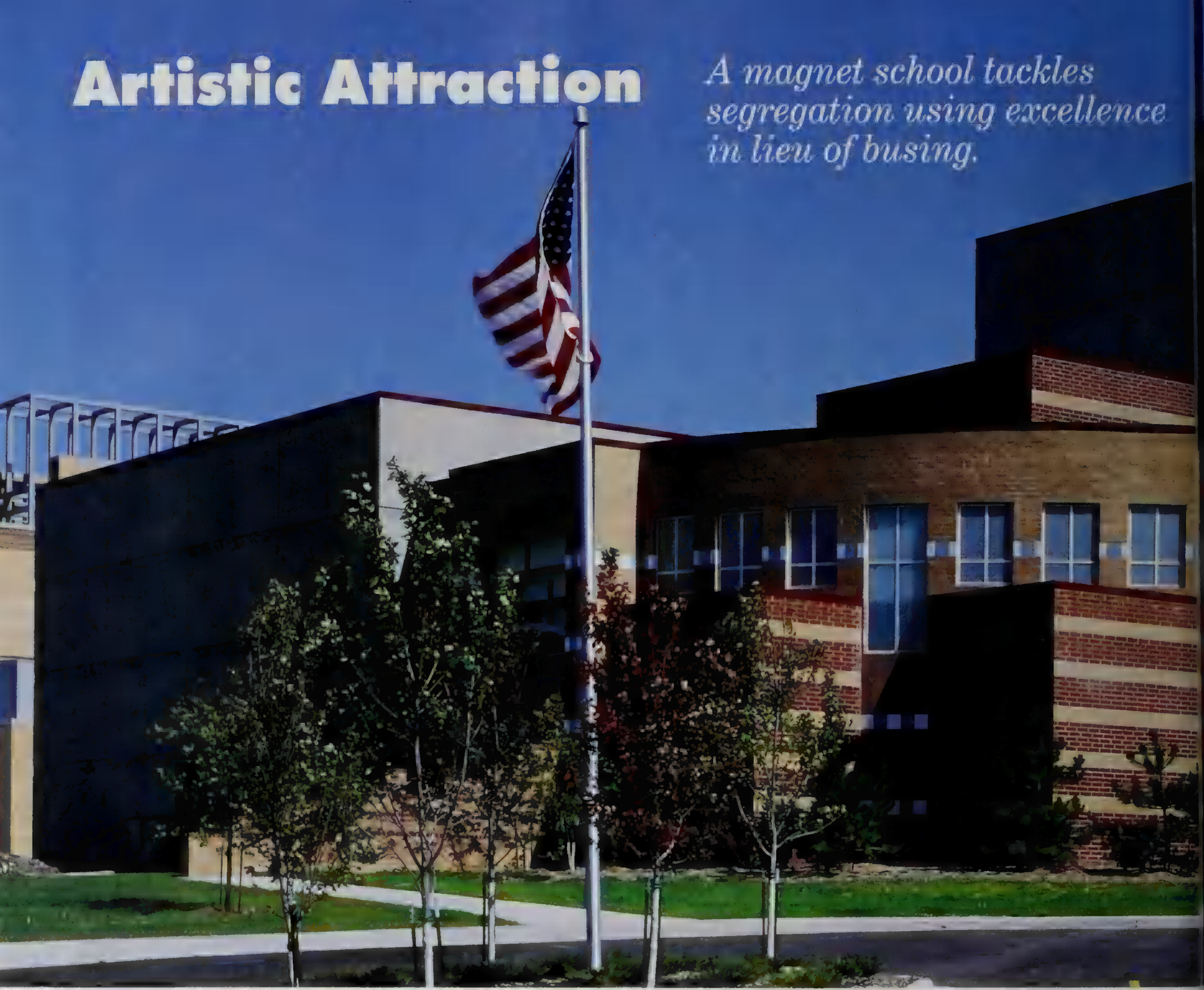
Credits
William H. Lincoln School
Brookline, Massachusetts
Architect: *Graham Gund Architects—Graham Gund, principal-in-charge of design; Peter Madsen, principal-in-charge of construction; Dan Rutledge, project architect; George Coon, Jonilla Dorsten, Tom Maloney, project designers; Mary Horst, Laura Cabo, Maria Donovan-Fernandez, Rob Bramhall, design team*
Engineers: *Charles Chaloff Consulting Engineers (structural); Cosentini Associates (mechanical/electrical)*
Consultant: *Cavanaugh Tocci Associates (acoustics)*
General Contractor: *Corcoran Jennison Builders*

1. Remedial
2. Classroom 4th
3. Classroom 5th
4. Resource center
5. Home economics
6. Art
7. Teacher lounge
8. Classroom 2nd
9. Classroom 3rd
10. Class room 8th
11. Classroom 1st
12. Science
13. Computers
14. Kindergarten
15. Cafeteria
16. Gymnasium
17. Library
18. Adult education
19. Child-care
20. Classroom 6th
21. Administration
22. Auditorium
23. Classroom 7th
24. Music and multipurpose



Artistic Attraction

A magnet school tackles segregation using excellence in lieu of busing.



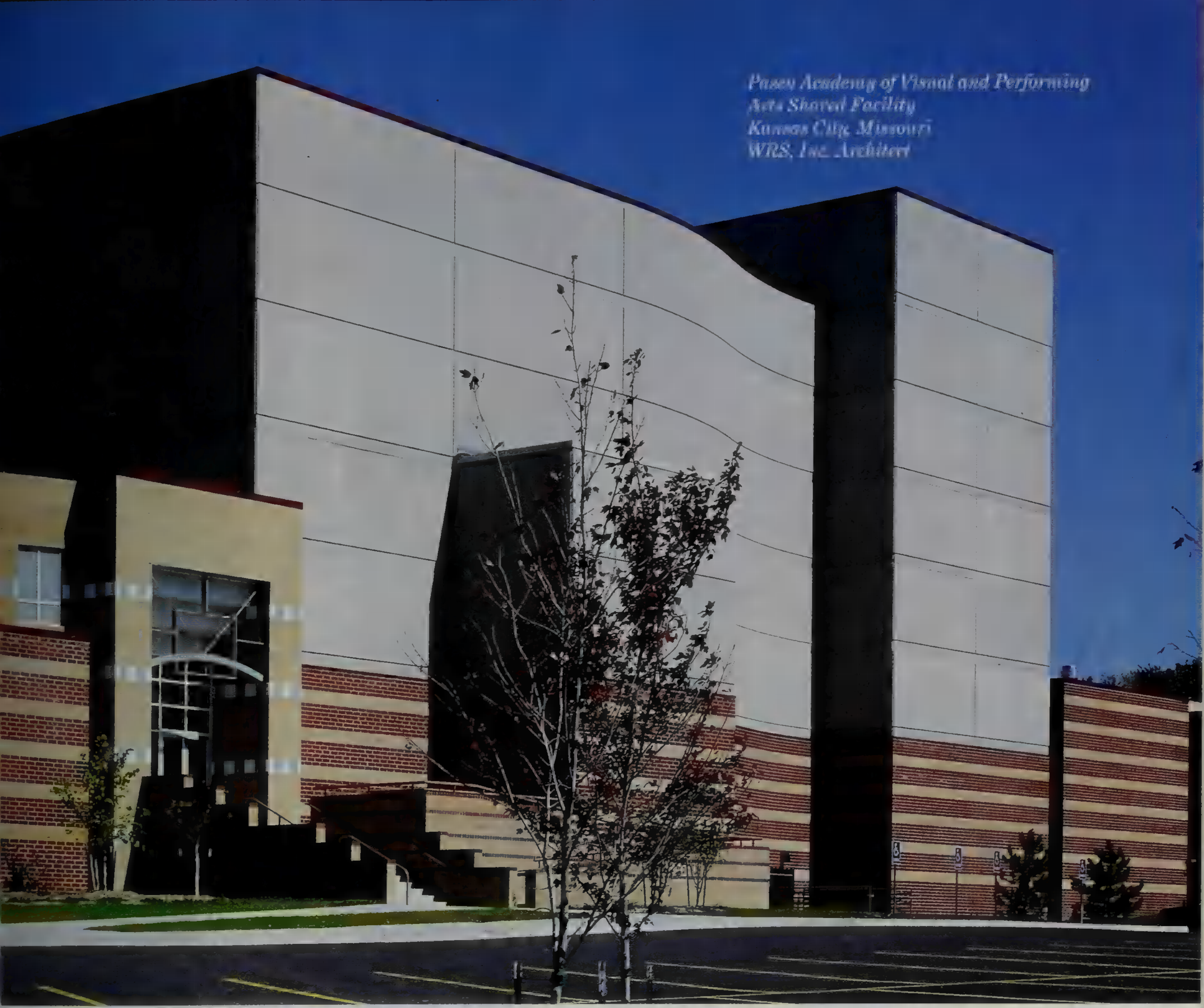
Kansas City, Missouri's inner-city schools are not unlike those in many cities: they have suffered the curse that follows a middle-class flight to the suburbs. The exodus leaves the poorest minority students in the worst schools or forces school districts to bus students to keep schools integrated.

One creative solution to the dilemma has been the creation of magnet schools. These schools draw the best and brightest students back into the inner city to attend both excellent and well-equipped schools that offer concentrated coursework in special areas, like science and technology or the arts. The schools have teachers who have specialized in certain areas, and students must work hard to be admitted to them and to stay in.

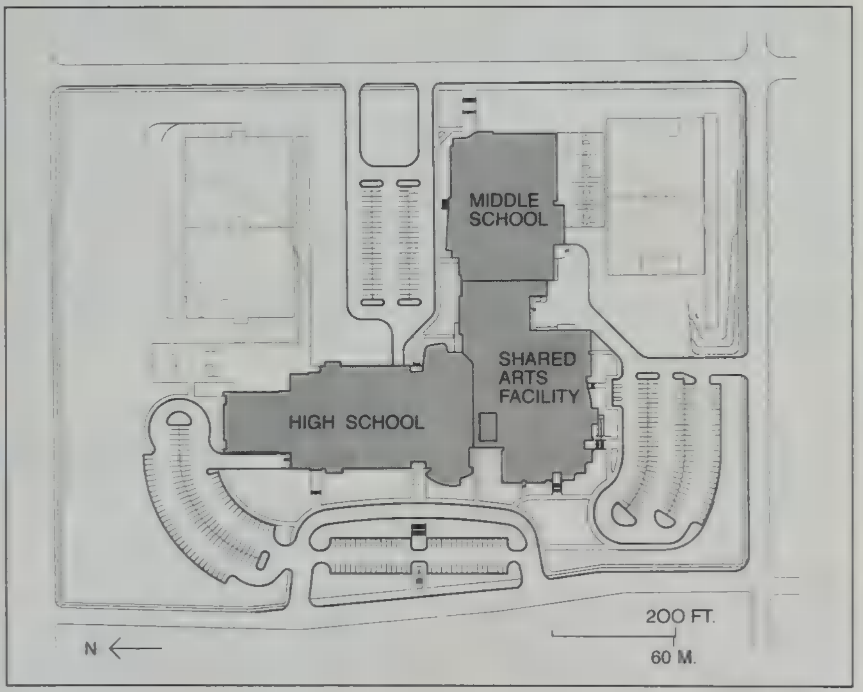
The Paseo Academy of Visual and Performing Arts is one of Kansas City's magnet schools. The academy occupies the site of the former Paseo High School, a grand limestone building built at the turn of the century atop a prominent hill. Once Paseo was a symbol of community pride, and many residents argued vehemently against tearing it down. Others said the school was a symbol of decline in the neighborhood and of educational standards throughout the area, arguing tha razing the structure was part of ushering in a rebirth for the neighborhood. Eventually, Paseo Academy was built.

The complex consists of three buildings (opposite). The high school was designed by Berkebile Nelson Immenshuh McDowell. The mid school and the performing-arts center (above) were designed by W Inc., and the master planning of the site was done by Frewen Architects. Segregation at Paseo Academy is limited to age only. The performance facility is shared by both the middle and high schools, although children of disparate ages do not necessarily share classes in fact, one of the key challenges that faced the master planners was placing each school in a different "safety zone" to assure the securit of the students.

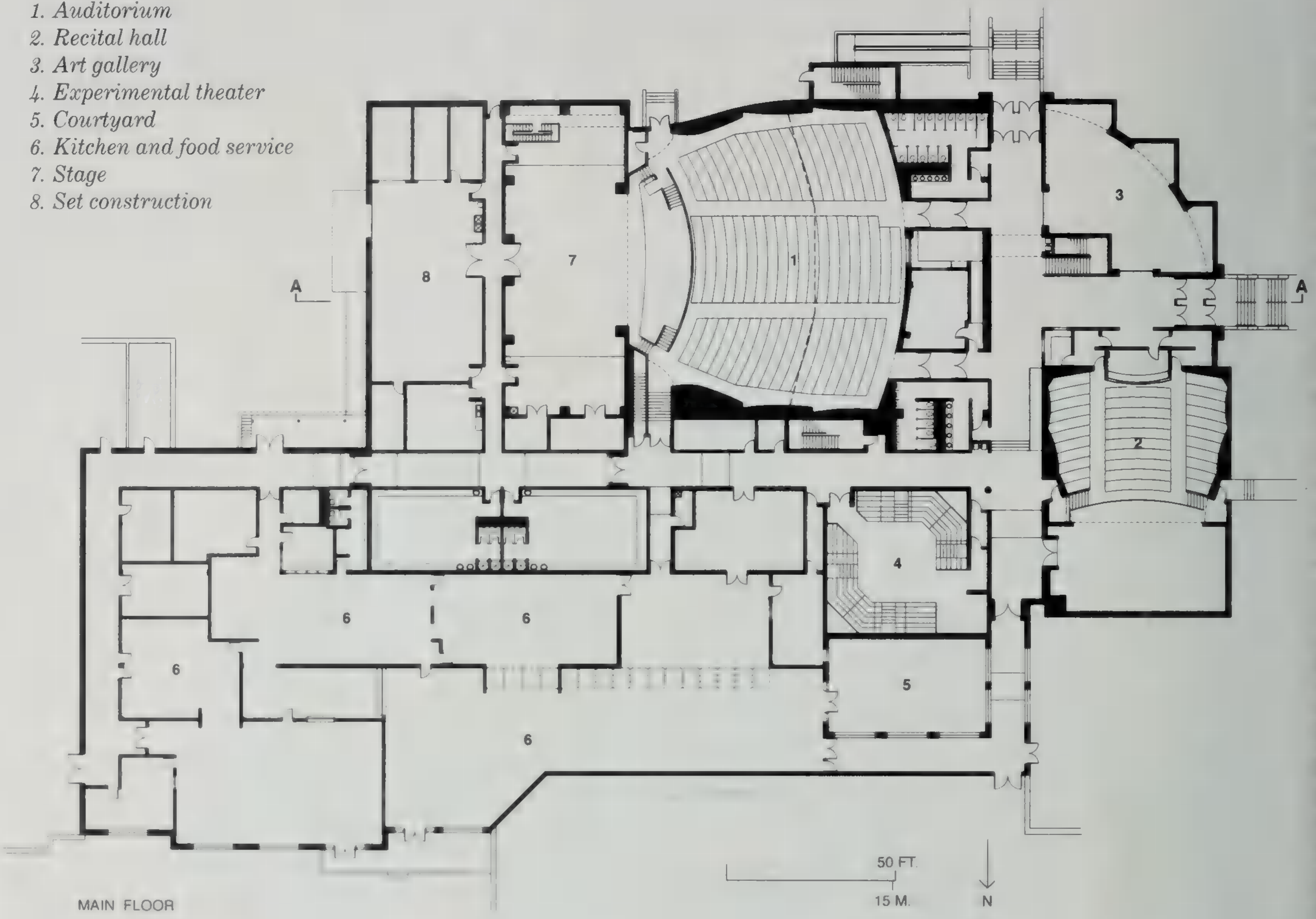
"The exterior of the performing-arts center building was influenced by the fluid movements of the arts," says WRS project architect Ma Spurgeon. It is further expressed in bands, squares, and three-dime sional planes of brick and concrete, materials that are highly resista to vandalism. *Charles Linn*



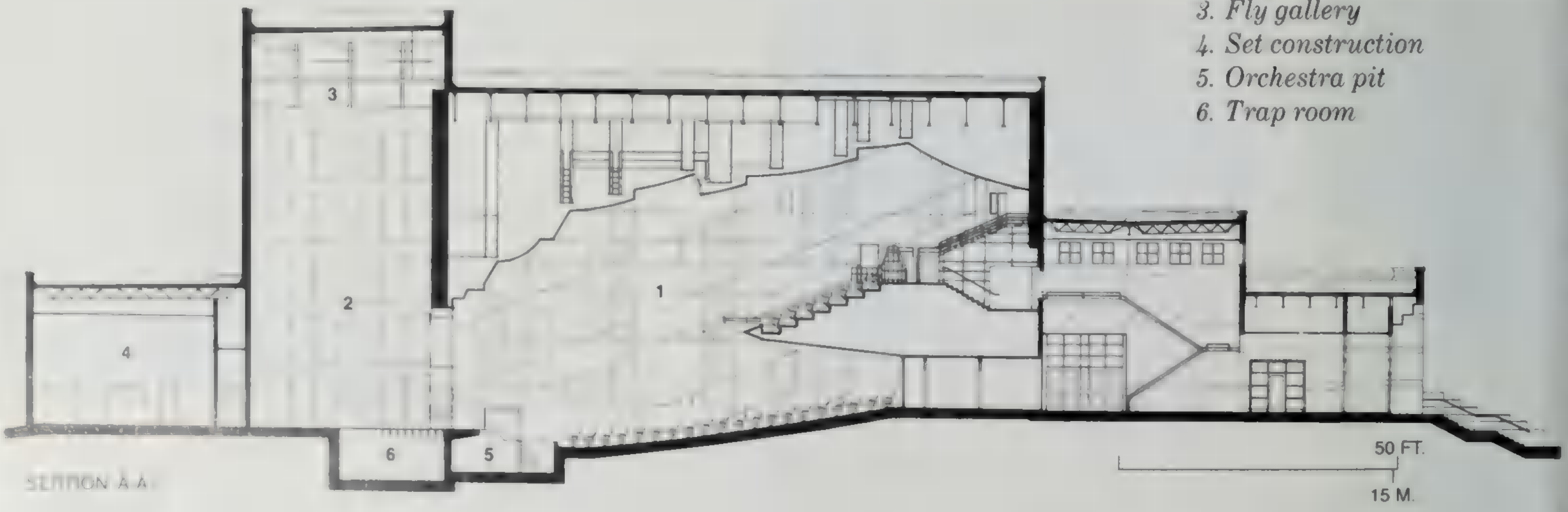
Paseo Academy of Visual and Performing Arts Shared Facility
Kansas City, Missouri
WRS, Inc. Architect



1. *Auditorium*
2. *Recital hall*
3. *Art gallery*
4. *Experimental theater*
5. *Courtyard*
6. *Kitchen and food service*
7. *Stage*
8. *Set construction*

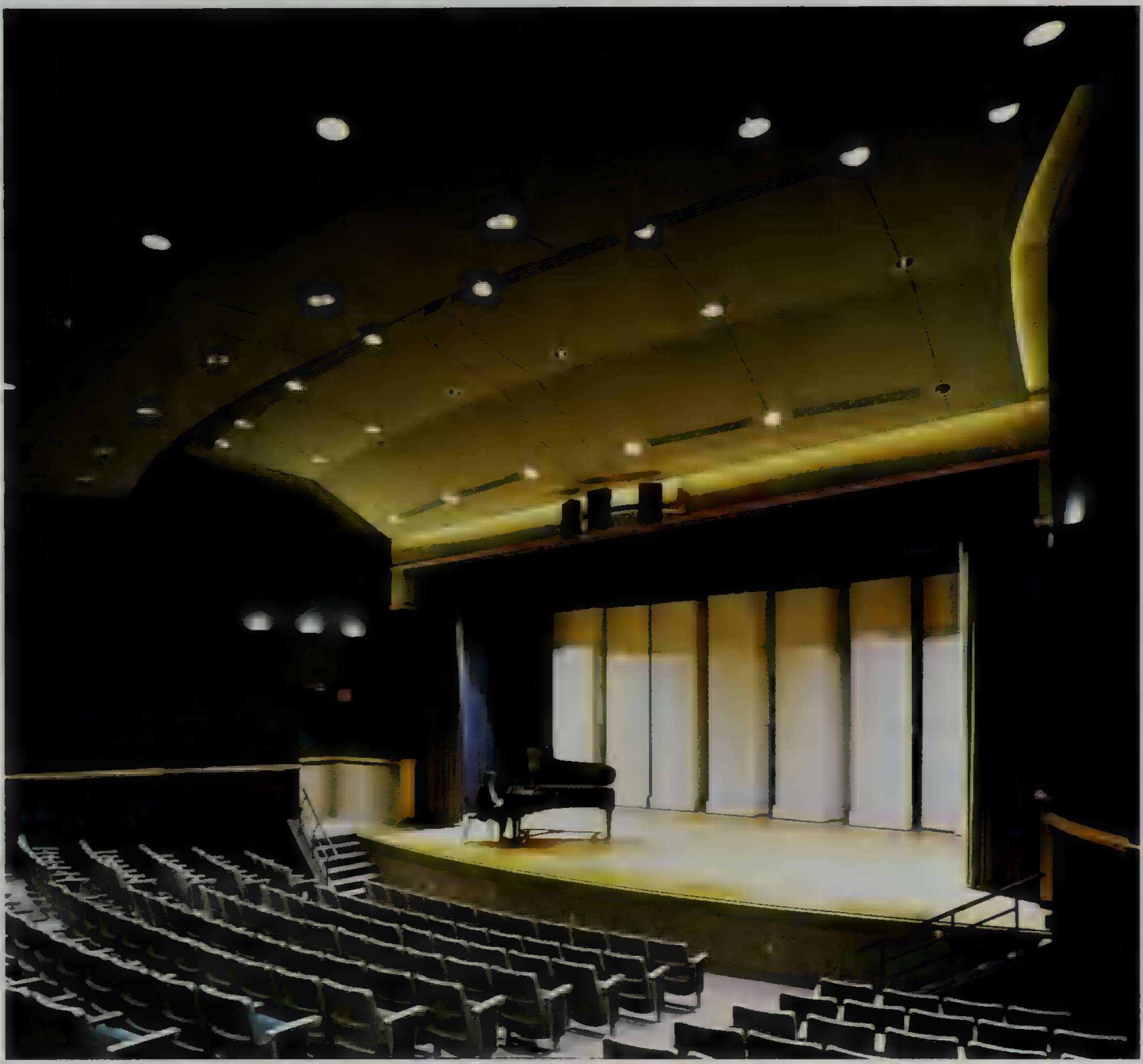


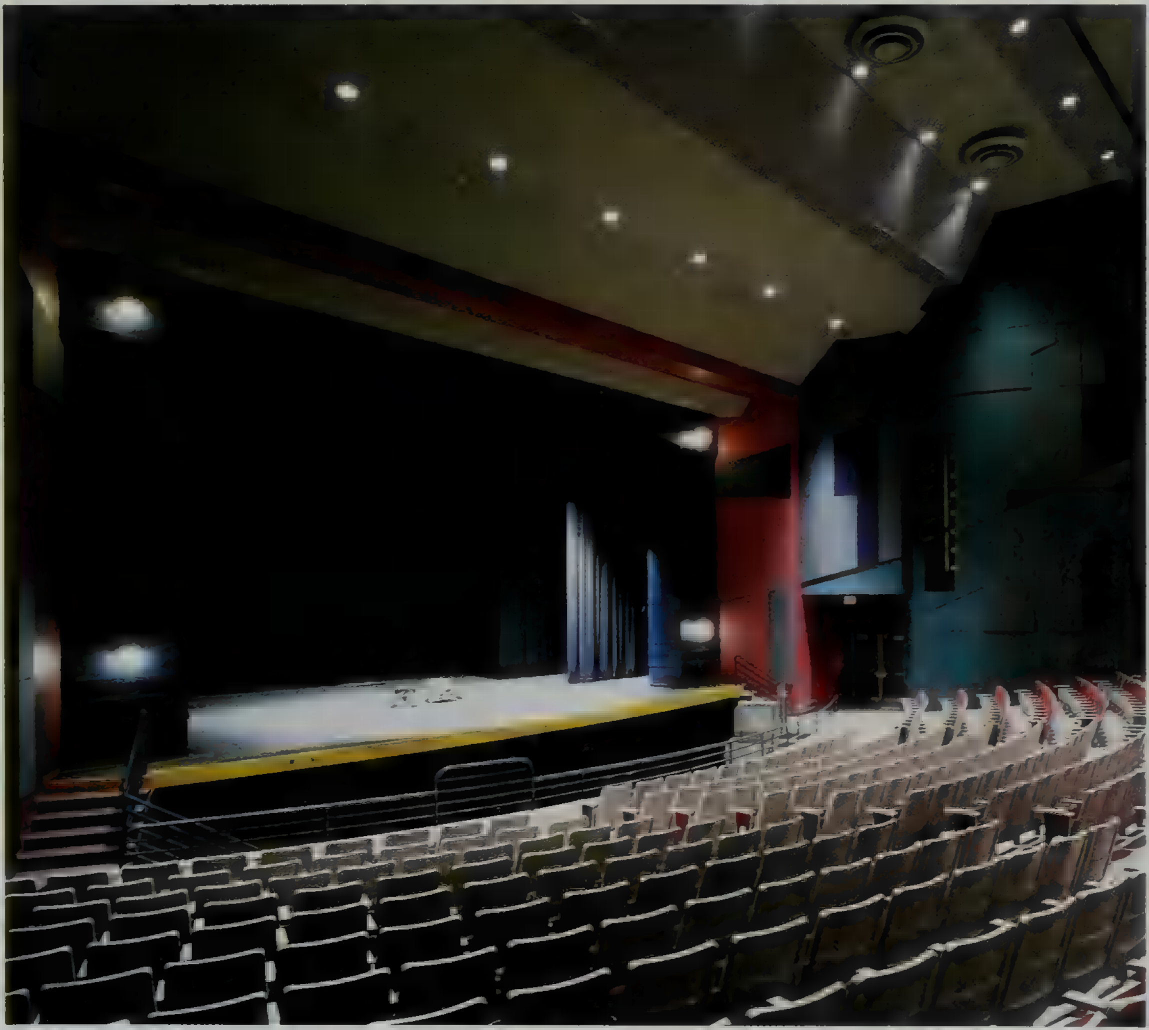
1. *Auditorium*
2. *Stage*
3. *Fly gallery*
4. *Set construction*
5. *Orchestra pit*
6. *Trap room*



academy has two remark-
performance spaces, a
seat recital hall (right) and
00-seat auditorium (below
). The school is equipped
an additional experimental
ter and a state-of-the-art
d studio and control room.
auditorium has all the
nities of finer drama the-
s: a handicap-accessible
estra pit, a stage trap
em and pit beneath the stage,
computer-operated lighting-
rol boards.

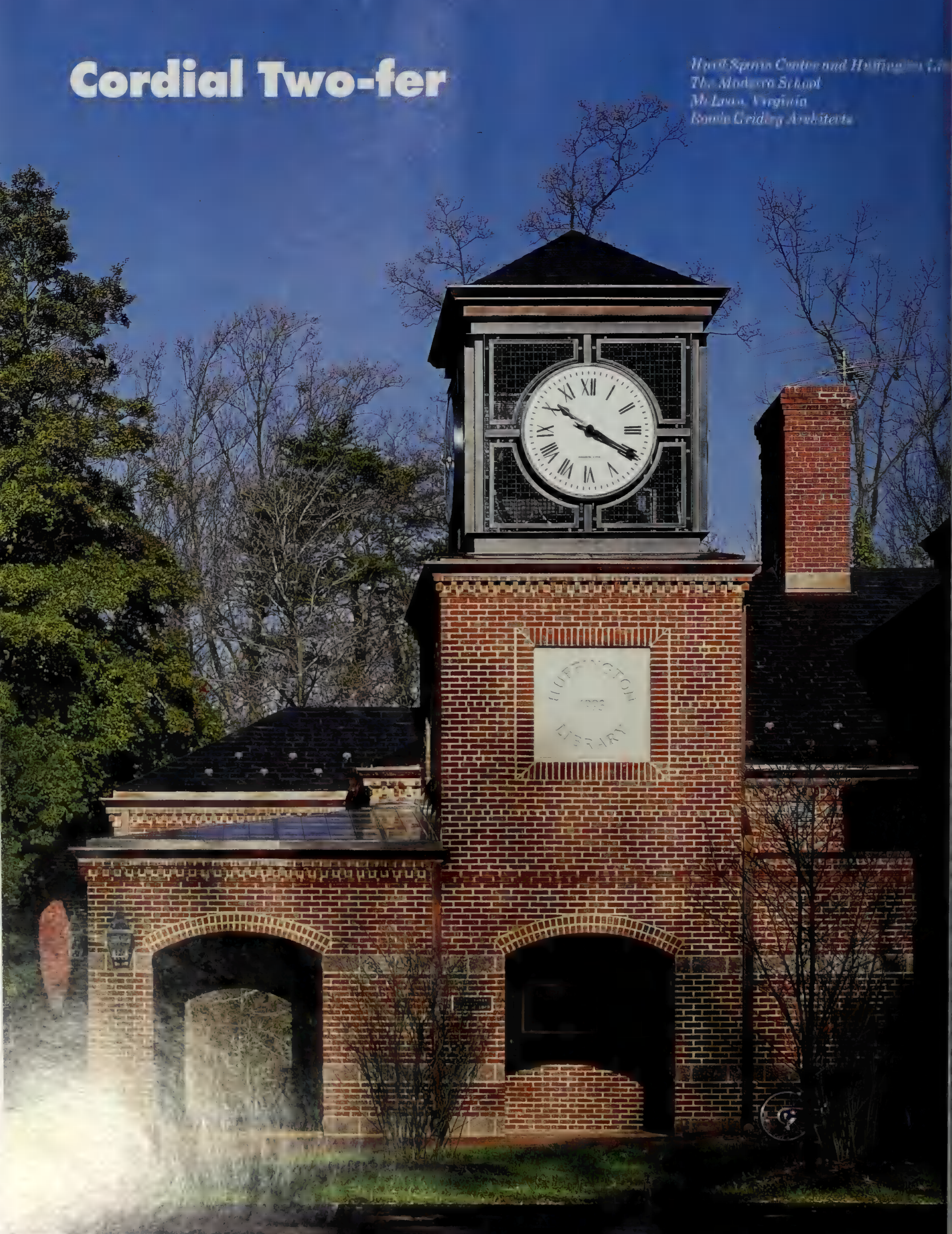
lits
o Academy of Visual and
orming Arts
sas City, Missouri
er: *The School District of*
sas City, Missouri
itect:
S, Inc.—Homer Williams,
cipal-in-charge; Mark S.
rgeon, project architect
ineers: *A.T. Renczarski &*
ciates (structural); WRS,
(mechanical, electrical,
nbing)
sultants:
g Taylor (theater); Labcoat
Systems—William Jahnkee
ustics)
eral Contractors:
west Titan (middle school);
. Ward (shared facility)





Cordial Two-fer

Hurd Sports Center and Huffington Li
The Madeira School
McLean, Virginia
Bowie Gridley Architects



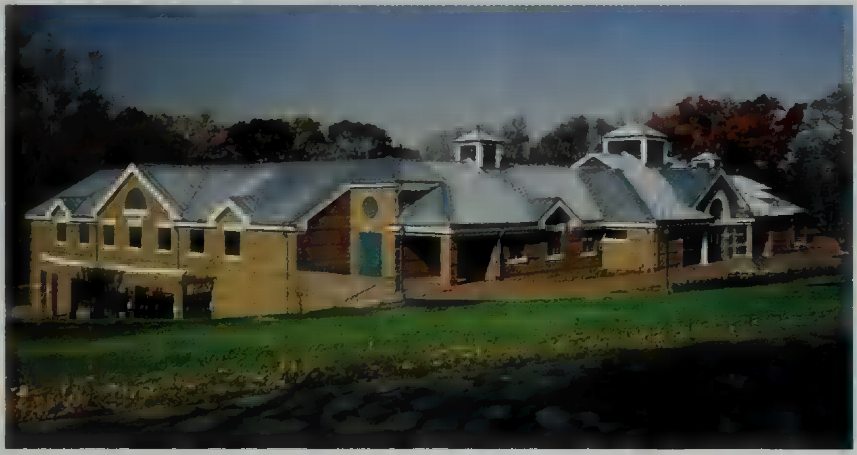
adeira School not only has the one new facility—a library— nally planned, but another—a gymnasium—to better carry out nanding academic mission. The Virginia institution is an exclu- y female secondary school dedicated, in the words of current mistress Elizabeth Griffith, "to educating the next generation of g women for leadership." Of the 327 students, more than half from other states and 31 other countries. Many are helped by ol scholarships and loans. Like its male-dominated counterparts, mphasis is on competitive sports and preparation for higher ation. For these reasons, both its athletic facilities and library f prime importance. Its library contains some 19,000 volumes, eriodicals, and on-line access to even more volumes and infor- on resources.

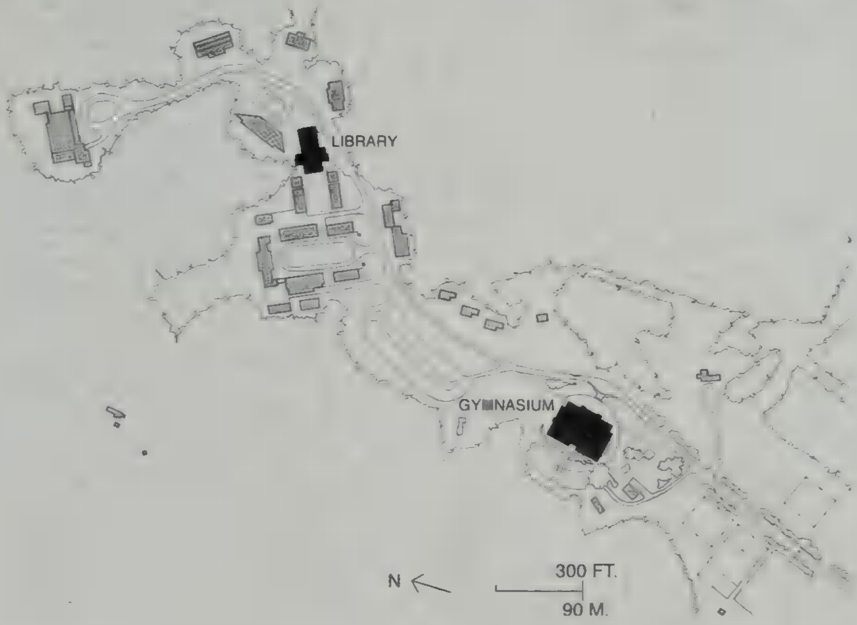
ie Gridley Architects has been described by *The Washington* writer Benjamin Forgey as taking a "holistic approach to gn." Each of their many new private-school buildings is carefully l and stylistically integrated into established campuses to weave n together. Accordingly, it was no surprise when the firm pre- d over four other candidates for the design of an all-new library adeira by suggesting the reuse of an old building. Bowie ley's plan, which the school quickly accepted, was to adapt a dig- d-but-obsolete 1935 Georgian Revival gymnasium strategically ted at the campus's academic heart. This freed the school to build w gymnasium closer to the main gate on a site convenient to out- visitors, and students using remote athletic fields and riding les on the 382-acre campus (site plan). Thus, the architects ed one commission into two, and the school got both up-to-date, lly sited facilities for less money than it would have spent had it ted from scratch.

king drawings proceeded simultaneously, but construction was ed so that the old gymnasium could be used until the new one built. Only then did construction start on the library reuse ect. The program of a gymnasium with two major spaces, includ- n indoor pool and many ancillary facilities, called for a tall 0-square-foot building. To bring this bulky mass into scale with ther low buildings on the campus, the architects placed the high down a slope from the main entrance (lower photo this page), h leads to a mezzanine on the second level. Visitors can view ts from windows in the weights and aerobics rooms at this ele- d height or descend into bleachers from a central corridor over sing rooms on the main floor below. Concealing rooftop mechani- quipment was a major concern to the school, which was ending with exposed installations on other new campus buildings. architects placed the extensive requirements for the gymnasium e flat roof over the main spaces and surrounded them with a een" of sloping terne that echoes pitched roofs over the front ion of the building.

old gymnasium was remodeled into an 18,000-square-foot library dding a new inviting open entrance arcade (opposite), and some 0 square feet of floor area in two small wings and on a new mezza- over the original double-height space (overleaf). Floors were oved to build foundations for the upper-level's steel supports, h echo the delicate tracery of original exposed steel roof trusses, to place conduit for an array of next-generation workstations. cherry woodwork extends the design of existing paneling.
rles K. Hoyt

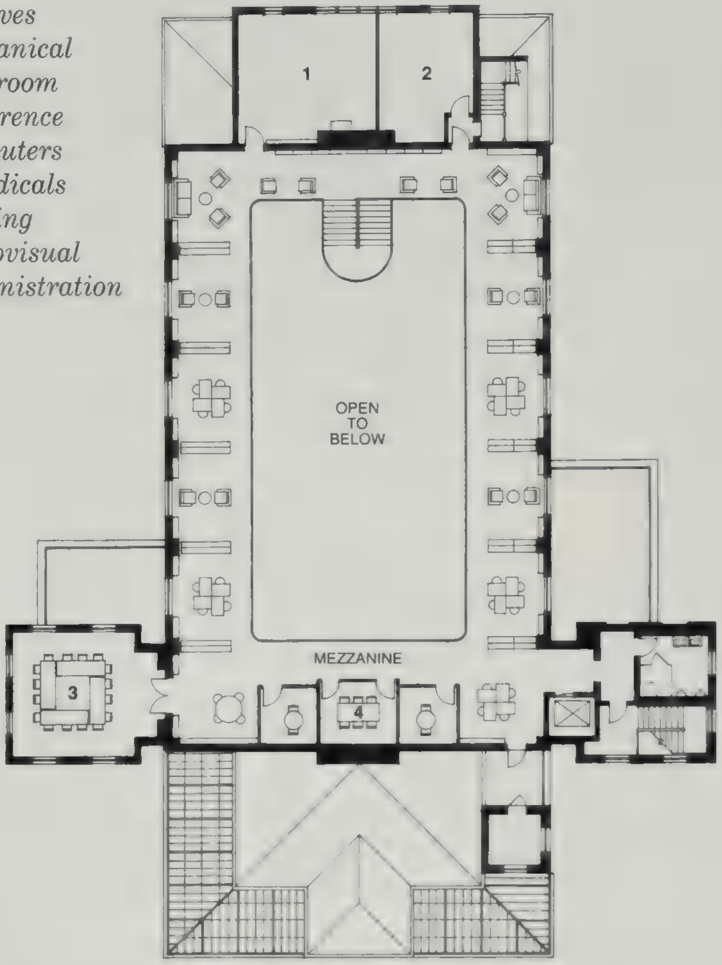
© *Alan Karchmer*



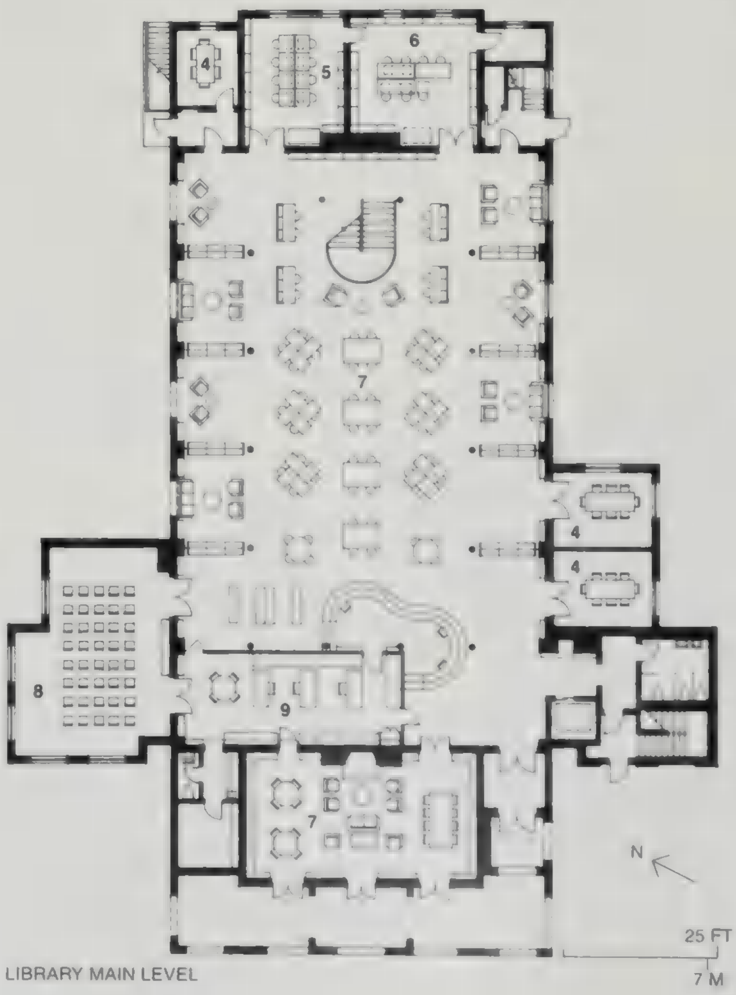


The new sports center (above) triples the space available in the original gymnasium (opposite). The old building was converted into a modern library for Madeira's ever-growing collections. That building now forms a fitting academic link between its quad and a theater to the north.

1. *Archives*
2. *Mechanical*
3. *Classroom*
4. *Conference*
5. *Computers*
6. *Periodicals*
7. *Reading*
8. *Audiovisual*
9. *Administration*

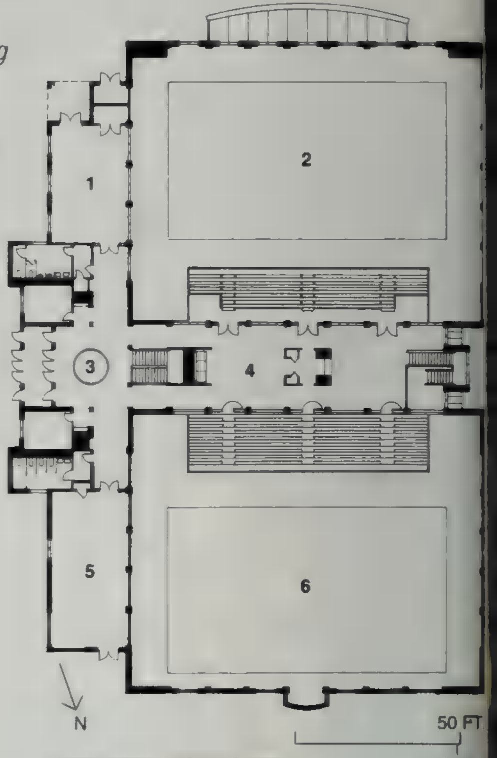


LIBRARY MEZZANINE LEVEL

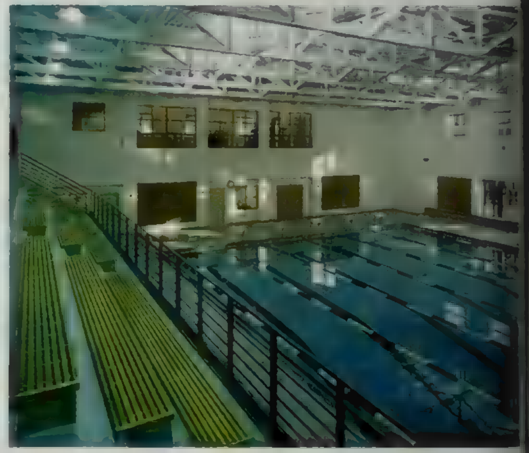


LIBRARY MAIN LEVEL

1. *Weight training*
2. *Pool*
3. *Entry*
4. *Bleachers with lockers under*
5. *Aerobics*
6. *Gymnasium*



GYMNASIUM ENTRY LEVEL



Glue-laminated trusses frame the exposed structure over the mezzanine while long-span steel trusses carry roofs over the pool and gym.

Credits

Hurd Sports Center and Huffington Libra
The Madeira School
McLean, Virginia
Architect: *Bowie Gridley Architects—Calvert S. Bowie, William C. Gridley, principals-in-charge; Stuart A. Billings, William J. DeMaio, project managers; Tim Lovett, Greg P. Kott, Christine A. Leonard, project team*
Engineers: *Setty & Associates, Ltd. (MEP/ James Madison Cutts (structural); Dewber & Davis (civil); Schnabel Engineering Associates (geotechnical), Polysonics (acoustical)*
Consultants: *Coventry Lighting Associate (lighting); Swimming Pool Design Service (pool); EDAW, Inc. (landscape)*
General Contractor: *James G. Davis Construction Corporation*

Product Literature/Schools

For more information, circle it
numbers on Reader Service Ca

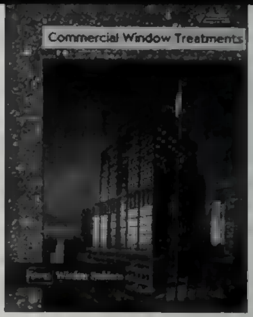
KidTime Desi ns

400. Community playgrounds
A binder describes equipment layouts and fund-raising ideas for playgrounds to be designed with input from kids, parents, and teachers. Illustrates modular, ADA-compliant play structures, swings, climbers, and slides, lists structural and finish options, details CAD-based planning help, and includes prices. 800/454-3846. GameTime, Fort Payne, Ala.

Why is *SuperLite* Better for Schools?

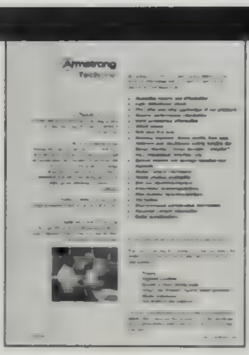
401. School glazing
A brochure explains why fire-rated safety glazings are "ideal" replacements for wired glass in schools. SuperLite I costs about the same as wire glass but is 10 times stronger; SuperLite II comes in large lights labeled for up to 90 min. Available on short lead times from plant. 415/822-4222. SAFTI Div. O'Keeffe's, Inc., San Francisco.

402. Coordinated resilient
A 24-page catalog illustrates five lines for commercial and institutional floors—VCT, Luxury Vinyl, Mipolam PVC flooring, solid-vinyl tile, and inlaid commercial vinyl—offered in a range of coordinated colors. All patterns and colors are shown; includes test results and project photography of installed floors. Sample kit. 800/558-2240. Azrock, San Antonio.

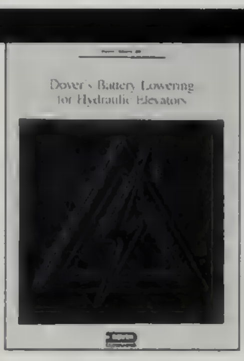

Commercial Window Treatments

403. Window treatments
A commercial/institutional catal
covers horizontal Bali blinds (of
as well as metal) and pleated sh
and Graber vertical blinds, insul
shades, and classic roller shades
drapery-hardware section gives
dimensions and mounting and c
options. Architect-sample progr
for all lines. 800/544-4749. Sprin
Window Fashions, Montgomery,

404. Washroom components
A new line for commercial, industrial, and institutional washrooms, Classic Series accessories—towel dispensers, vendors, mirrors, and grab bars—and 1542 Series toilet compartments are described as value priced and design integrated. A catalog covers 175 models in 15 product categories. 800/553-1600. Bobrick Washroom Equipment, Inc., N. Hollywood, Calif.

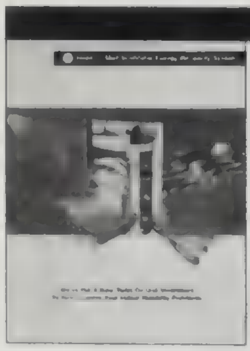

Armstrong

405. Expert technical advice
A new resource for specification, design, and product-data help, a free TechLine has five full-time experts available to provide the architect or designer with fire-label and other code information, light-reflectance and acoustic values, and customized ceiling drawings of Armstrong products. 800/448-1405. Armstrong World Industries, Lancaster, Pa.

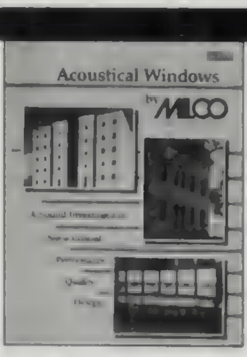

Dover's Battery Lowering for Hydraulic Elevators

406. Elevator upgrade
A brochure describes a battery-operated retrofit lowering system that brings [illegible] hydraulic elevator safely to the lowest landing and opens the doors during power failures, saving the expense of an emergency power generator. Also free: [illegible] new, on-line, interactive elevator-design service for architects. 601/393-2110. Dover Elevator Systems, Memphis, Tenn.

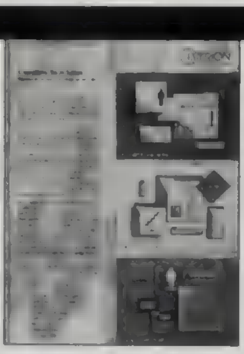
407. Fire-rated [illegible] door
A universal-type design for both
and ceilings, metal access door
carries a UL class B 1 1/2-hr lab
walls, and the Warnock-Hersey l
for 3-hr. noncombustible floor/ce
systems. Described as thin and e
to install, door has a self-closing
Available in sizes from 8- to 48-ir
square, primed metal or stainles
steel. Milcor Ltd., Lima, Ohio.



408. Classroom energy recovery
An enthalpy heat wheel system, air-to-air heat exchangers are sized to provide 30-student classrooms with the right amount of fresh air, meeting air-quality standards like ASHRAE [illegible] brochure describes [illegible] for use with individual [illegible] The Trane [illegible]


Acoustical Windows by MILCO

409. Acoustical windows
Made with two separate aluminum frames joined by [illegible] non-structural thermal barrier, windows come in double-hung, rolling, and fixed/fixed-removable models. Available in all commercial metal finishes, windows can be furnished with between-glass horizontal blinds and a STC rating of up to 55. 715/842-0581. Milco, Inc., Wausau, Wis.



410. Institutional signage
Brochure illustrates a flexible interior sign system said to have a custom look without a custom price tag. The Criterion uses a standardized, color-coordinated frame to hold any of a range of custom insert options behind a non-glare removable lens. Sizes and profiles for a single room sign to a turnkey wayfinding system. 800/733-5769. Kroy, Inc., Scottsdale, Ariz.

DEX-O-TEX

411. Jointless flooring
A catalog has 12 pages on seaml
systems for the traffic and slip-r
tant needs of schools, restaurant
transportation, retail, and indust
floors. Introduces Terracolor, an
epoxy mosaic floor with a bold es
ic available in 18 colors, for use o
concrete, existing tile, or wood su
strates. 310/886-9100. Crossfield
Products, Rancho Dominquez, C

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RCHITECTURAL RECORD PACIFIC RIM 7/1995

ntents:
untry Reports 3
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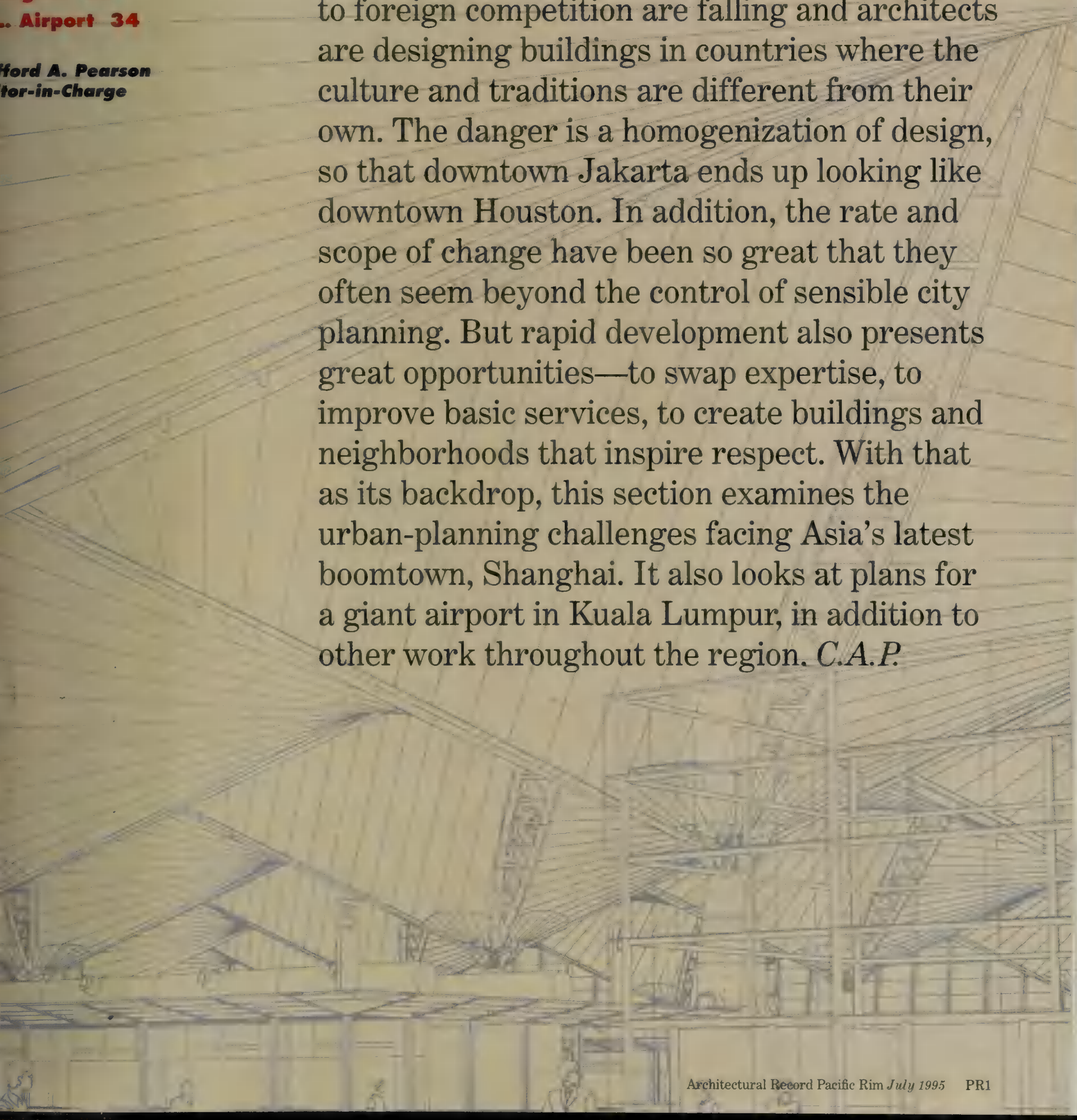
tting Paid 25
actice Survey 27
anghai 28
.. Airport 34

fford A. Pearson
tor-in-Charge

Now in its third year, RECORD'S annual Pacific Rim section reflects a critical trend sweeping through the profession—the globalization of architecture. For better and for worse, barriers to foreign competition are falling and architects are designing buildings in countries where the culture and traditions are different from their own. The danger is a homogenization of design, so that downtown Jakarta ends up looking like downtown Houston. In addition, the rate and scope of change have been so great that they often seem beyond the control of sensible city planning. But rapid development also presents great opportunities—to swap expertise, to improve basic services, to create buildings and neighborhoods that inspire respect. With that as its backdrop, this section examines the urban-planning challenges facing Asia's latest boomtown, Shanghai. It also looks at plans for a giant airport in Kuala Lumpur, in addition to other work throughout the region. *C.A.P.*



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oustics

na

eijing Tries Applying Brakes
Runaway Growth

, 1994: $509 billion
growth, 1994: 11.8 percent
jected GDP growth, 1995: 9 percent
ation, 1994: 24 percent
ulation: 1.2 billion

nomic overview: The Chinese economy
inues to grow at a double-digit pace,
ing it the most important focus of devel-
ent in the Pacific Rim. But the upcoming
ical succession and the potentially desta-
ing effect of high inflation (nearly 30
ent in urban areas and 24 percent overall
94) are convincing the central govern-
t of the need to slow down the economy.
nese leaders are now aiming to bring
vth to a more sustainable level of around 9
ent for 1995. Believing land speculation to
ne principal culprit in overheating the
omy, authorities are using restrictions on
-estate development as a primary lever for
ying the brakes. Such restrictions include
atoriums on construction loans and pro-
tions of some types of tourist and "luxury"
lopment.

politics [illegible] corruption: In China, eco-
ics and politics are inextricably linked.
eed, much of China's recent politically
rged anti-corruption campaign has focused
legal actions by government and party
ials in the property and real-estate-devel-
ent sectors. Referring to the moratorium
uxury development, a recent *China Daily*
le noted the arrest of a few high officials
a key tourism city for permitting con-
ction of a hotel that was deemed "too
rious." In the past six months, this cam-
n has also resulted in a near-complete
over in the upper echelons of Beijing's
government and party apparatus over
ged irregularities in the planning
rovals process.

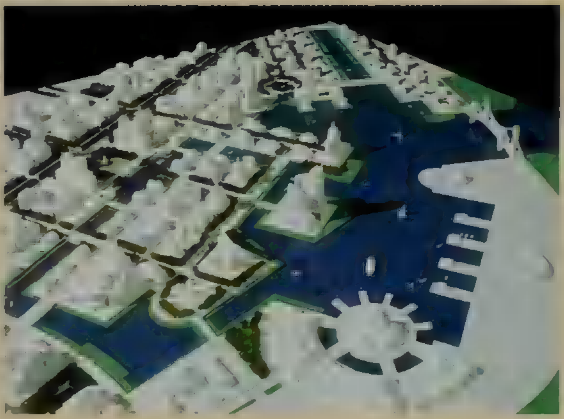
s of strength: Despite the imposition of
nomic control and the ever-present politi-
ncertainty, there are a number of factors
continue to buoy the China market.
owing the Clinton Administration's
onditional granting of most-favored-nation
ing status last year and the prospect of China joining the new World Trade Organization, a host of foreign investors and companies have opened offices in this country's major cities. In addition, years of central planning have left the country with shortages in most capital-intensive sectors, including buildings.

Office construction: Demand for office space in the capital has been such that the Chinese media reports, with a mix of pride and dismay, that Beijing's office rents are now as high as the pricier districts of Hong Kong, Tokyo, and New York. In Shanghai, all the new buildings in Pudong and Huangpu suggest the city will soon have a surfeit of office space. But a common complaint heard in most parts of China is that very few such office buildings will meet western standards of construction, finishes, or amenities.

Housing: In response to the severe domestic shortage of urban housing, the Ministry of Construction continues to place priority on residential development. The aim of a new seven-year "Comfort Housing Project" is to build more than 14-billion sq ft of housing by offering tax breaks for developers, while encouraging residents to purchase their apartments. Expatriate housing is also in short supply in major urban centers.

Adaptive re-use: The shortage of residences and commercial space in tandem with the liquidation of the assets of debt-ridden state-run enterprises has led to the development of an interesting niche market in renovation and adaptive re-use. Because approvals for new development can be slow, as permits are "rationed" onto the market, some short-term supply has been met by lower-rent, "quicker-to-market" conversions of factories, schools, and exhibition halls into offices, stores, and entertainment complexes.

Where the action is: Shanghai's development, supported resolutely by the central authorities, seems to continue unabated with not only Pudong, but the entire city, in the shadow of cranes or behind scaffolds. In time, the rehabilitation of Shanghai is expected to spur development along the Changjiang (Yangtze) River. In part due to inflated property prices in Shanghai, interior cities such as Chongqing, Nanjing, and Chengdu are already beginning to see more growth. Though there remains much demand for commercial and residential accommodations in Beijing, it is as yet unclear what impact the city's recent political changes will have on its near-term development. The State Planning Commission is encouraging investment and development in the north and northeast region—including the cities of Shenyang, Dalian, Harbin, and Tianjin. In southern China, cities like Shenzhen and Guangzhou, which were the first to benefit from economic reforms a decade ago, continue to grow. But others, such as Hainan Island, which is heavily dependent on tourist-oriented luxury development, have slowed dramatically.



In northeast China, where growth is still encouraged, RTKL has masterplanned a new town for 330,000 people outside of Dalian.

Spotlight on reform: Last year, the Ministry of Construction announced reforms to raise the standards of the architectural profession. An impor-tant aspect of the reforms is the removal of government subsidies. Design institutes, many bloated with huge staffs, will be subject to the rules of a market system. To stay afloat, most institutes will encounter the heretofore alien concepts of reorganization and downsizing.

Grant W.K. Sung, American architect working in Beijing

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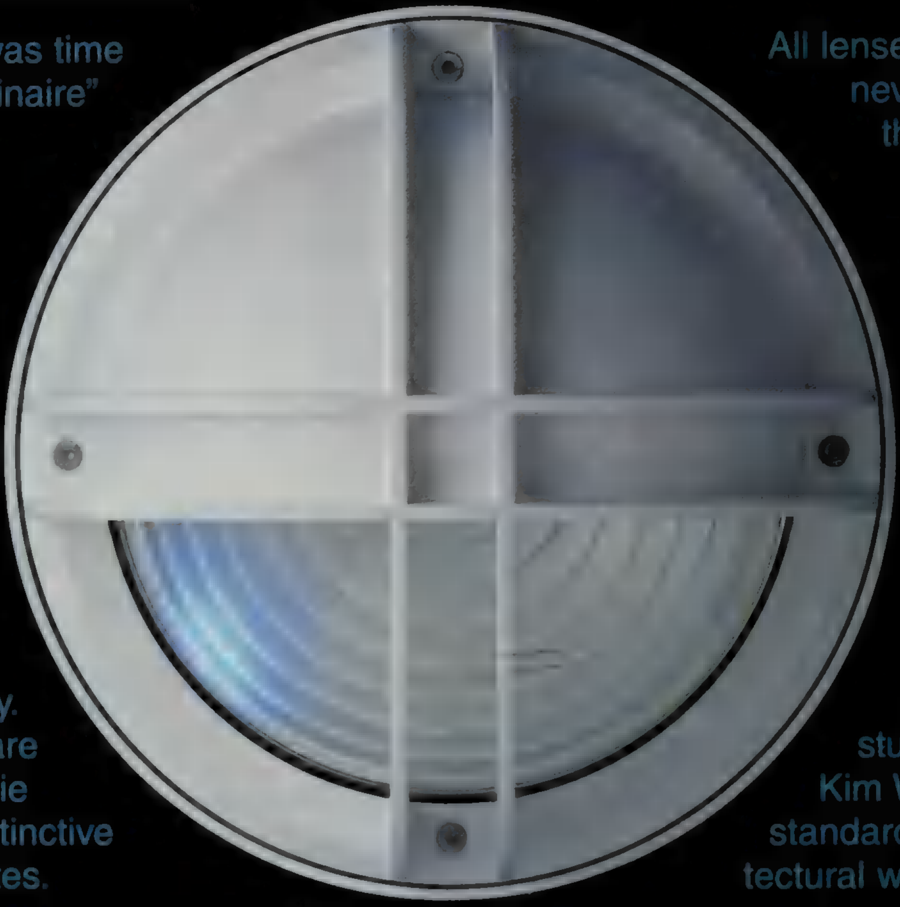

All lenses are glass so they w
never yellow and will allo
the use of HID lamps fo
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Four complementar
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available to create th
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of light needed t
satisfy a variety o
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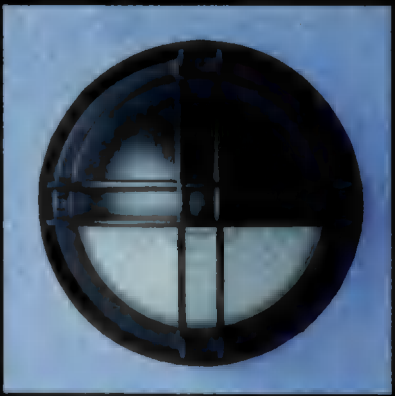
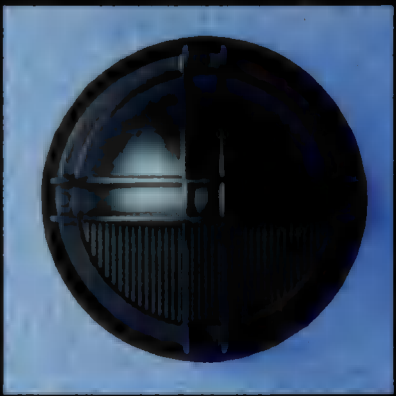


Half Face
Emphasizes downlight while still providing fixture glow.



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Circle 26 on inquiry card

'ith Reconstruction Underway, rchitects Hope to Preserve the Past

n Karr photo

historic Thirty-Six Streets district of Hanoi is the focus of preservation efforts.

', 1994: $15.46 billion
' growth, 1994: 8.8 percent
jected GDP growth, 1995: 10 percent
ation, 1994: 14.4 percent
ulation: 73 million

nomic overview: Hanoi's reformers can
t to strong 1994 economic figures as proof
eir success in converting communist
nam to a policy of capitalism with a
ialist orientation." A surge in GDP,
oorted by strong growth in construction
l percent), industry (12.9 percent) and
ices (10.2 percent), lends credence to the
rm strategy. Vietnam's free-market
sformation or "doi moi" (renovation)
in in 1986 as a desperate bid to save the
on's economy from the stagnation of an
ere Soviet-style centralized system. By
end of last year, Vietnam had reduced
tion from 600 percent in 1986 to 14.4
ent. While the government is trying to
the 1995 figure under 10 percent, more
istic estimates put this year's inflation at
veen 12 and 15 percent. Deputy Prime
ister Phan Van Khai in April told the
ial Lao Dong newspaper that Vietnam's
ual economic growth rate should reach 10
ent by 1995 and 12 percent by the end of
entury. By 2000, the Government plans to
ease gross domestic product 2.5 to 2.7
s the 1990 figure, lifting the nation from the ranks of the world's poorest nations.

Joining its neighbors: The country is poised to join the Association of Southeast Asian Nations (ASEAN) this summer, an event seen as ■ significant milestone on the country's path of "doi moi." ASEAN membership is the final step in Vietnam's shift of alliances from the Soviet Union and Eastern-bloc nations to Southeast Asian powers.

Foreign investment: The 1987 Law on Foreign Investment has enticed foreign businesses to pledge nearly $14 billion through the first quarter of 1995. Overseas investment has not been without its problems, though. Corruption and bureaucratic red tape, combined with a slipshod legal system, have turned many foreign business' experiences into nightmares of expensive delays and miscues. In February 1994, the U.S. lifted its 19-year-old trade embargo, clearing the last obstacle to billions of dollars of international aid for essential repairs to the nation's crumbling infrastructure.

Construction: Overseas investors have funneled 44 percent of their capital in Vietnam into the construction of offices, hotels, and other commercial space. The largest licensed project to date is ■ $524.5-million Taiwanese venture to develop a sprawling retail, office, and park complex in downtown Ho Chi Minh City (formerly Saigon). The complex, dubbed the Central Park Project, will feature the nation's tallest building, a 38-story office tower to be completed by the year 2000. With over 20 percent of foreign investment aimed at tourism, hotel building is also active. Of note is the recently approved $243-million Non Nuoc Resort complex at China Beach, once a popular R&R spot for American GIs.

Local architects: With a construction boom underway, opportunities for local architects would seem to be great. However, according to one of Vietnam's top architects, little of this business has trickled down to the country's more than 6,000 trained architects. "I worry that foreign contractors are passing over Vietnamese architects in favor of designers from abroad,"says Nguyen True Luyen, chief executive of the Vietnam Union of Architects. Without Vietnamese architects playing a more significant role in the planning and design of major projects, the unique character of the nation's cities may be lost.

Spotlight on preservation: Although the French didn't leave behind much in the way of infrastructure when they exited Vietnam in 1954, they did leave Hanoi—one of Asia's most beautiful cities. During the next 40 years, the city remained almost intact, isolated by warfare, Soviet-style austerity, and a U.S. trade embargo. Hanoi's eclectic blend of Chinese, French, and Soviet buildings, and its tree-lined boulevards have been spared—so far—the free-market ravages that have swept away older neighborhoods and vernacular buildings in other Asian cities.

Historic district: Help in preserving the country's architectural heritage is now being provided by a $1.8-million grant from the government of Australia to prepare ■ strategy for protecting the "Thirty-Six Streets" district in Hanoi. The original merchants quarter of the 1,000-year-old city, the Thirty-Six Streets is a maze of alleyways, pagodas, shopfronts, and crumbling old teahouses, and still serves as the locale for guilds specializing in traditional handicrafts. While the city has approved the Thirty-Six Streets plan, it has yet to implement it, and new construction rises with few controls in the old quarter. When in force, the plan will not prohibit new construction, but rather will block the demolition of landmarked sites and limit buildings in the district to a height of 53 feet.

Tim Karr, Hanoi-based journalist working for the Vietnam Investment Review

The Phoenician Resort, Scotts

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ımbers Point Up

, 1994: $56.8 billion
growth, 1994: 4.3 percent
ected GDP growth, 1995: 5.6 to 6
ent
tion, 1994: 9 percent
ılation: 65 million

rview: A first-time visitor to Manila t find the skyline unimpressive, espe- if coming from Hong Kong or Singapore. Manila has changed, both in the size of the buildings and their style. Beside the boxy rete blocks that once dominated the sky- ise stylish steel-and-glass towers—signs eater freedom and a growing economy. e Philippine politics remain contentious, ident Fidel Ramos inspires confidence in usiness community. Liberalization in e, finance, and investment policies have helped.

stment: In 1994, overall investments by 10.1 percent, with construction, dur- equipment, and manufacturing leading vay. Direct foreign investment amounted 63 million last year, while portfolio invest- t by foreigners was $3.23 billion. Initial figures suggest that direct foreign stment continues to surge, even as the stock market sags. Aside from traditional sources of investment—the U.S., Japan, and nearby Taiwan—investors are coming from Hong Kong and smaller Asian economies like Thailand and Malaysia.

A growing economy: After years of hardship and turmoil, the Philippine economy has turned upward with investment fueling growth. Per capita GDP, though, remains low ($830 per year), limiting purchasing power to a narrow swath of society. Population is growing by more than 2 percent a year and may reach 75 million by the year 2000.

Construction: Architects and developers expect construction to remain strong. In metro Manila, residential and office condominiums rise at a steady pace. Architect Manuel Manosa says Manila's shortage of vacant lots and the impracticality of commuting from outlying towns have fueled a boom in multi-family housing. Architect Rogilio Villarosa says office condominiums that appeal to small and mid-sized firms are proving more popular than buildings with large suites or multi-floor offices. Deluxe hotel construction, though, has slowed after developers added 2,000 rooms to Manila's supply in 1993 and 1994. Meanwhile, the government is building schools and low- and moderate-income housing, especially in the provinces.

Spotlight on a military conversion: One of the most prominent new projects in the country is the conversion of Fort Bonifacio, Manila's Philippine Army headquarters, into a 289-acre, multi-use development. In January, a consortium led by the Metro Pacific Corp. successfully bid $1.6 billion for a 55 percent share in the mega-project on the edge of the Makati financial district. Called "the city of the 21st century," Fort Bonifacio will be developed as a joint venture with the Philippine government. A conceptual masterplan, prepared by RTKL and Manila's Planning Resources & Operations Services (PROS), calls for the creation of two major districts separated by a large green space. The northern district, envisioned as a new business quarter for Manila, will include office, hotel, retail, and residential buildings. The southern district will be mostly residential. Construction should start in 1996 and will continue for about 20 to 30 years.

James B. Goodno, Southeast Asia correspondent for World Trade *magazine*

gapore

ıutious Optimism Colors Forecasts

, 1994: $66.3 billion
growth, 1994: 10.1 percent
ected GDP growth, 1995: 7.5 to 8.5
ent
tion, 1994: 3 percent
ulation: 2.98 million

nomic overview: While business utives in Singapore "remain broadly nistic," say analysts at DBS Bank, ercussions from external factors such as interest-rate movements, concerns over ıa's political succession, and the Barings s have created an air of caution and ıpted a downward revision in the real growth projection..." Indeed, the ıstry of Trade and Industry (MTI) has red its forecasted growth rate to 7.5 to 8.5 ent, from 8 to 9 percent.

struction: Building activity this year ıld exceed that of last year, says Lam Siew Wah, the chief executive officer of the Construction Industry Development Board (CIDB). According to CIDB projections, $8.47 billion worth of projects will be awarded in 1995, up 7 percent from last year. Of this total, $5.25 billion will be for public-sector projects. About 40 percent of the public works will be for housing, a reflection of an upgrading program initiated by the Housing and Development Board. Private residential contracts are expected to fall to $1.33 billion this year from $1.96 billion, due to the government's efforts to curb real-estate speculation, as well as to rising interest rates. Private commercial contracts are projected to reach $660 million, while manufacturing contracts are seen as hitting $980 million. Meanwhile, spending on institutional buildings is projected to be approximately $1.26 billion.

Spotlight on shopping centers: Lately, the Singaporean concept of a shopping center has evolved. Once confined to Orchard Road, this icon of modern retailing has spread throughout Singapore, most notably near or above rapid-transit stations. No longer just collections of retail shops, the latest malls include large atria, multiplex theaters, food courts, supermarkets, even amusement centers. Not everyone is impressed with the centers, though. In an article in The Straits Times, Tan Hock Beng, of the National University of Singapore's School of Architecture, says, "The exterior forms of these shopping centres are extremely bland and ungainly. Such faceless development, with their banal windowless hulks of walls, does little in encouraging residents to identify with their own towns with a real sense of pride."

Arthur C. Chew, Singapore journalist

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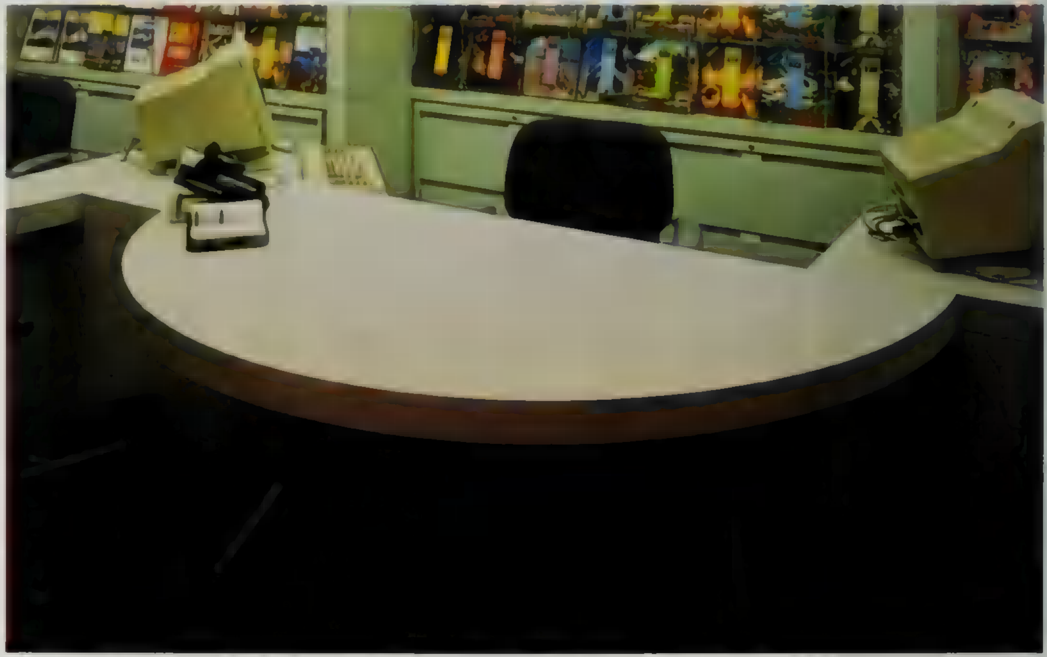

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nstruction Helps Drive Strong Economy

n Sutera is one of many new satellite towns being developed outside Jakarta

, 1994: $588 billion
growth, 1994: 7.3 percent
jected GDP growth, 1995: 7.5 percent
ation, 1994: 9.6 percent
ulation: 190 million

nomic overview: Having pushed its s national product per capita to $884 in , Indonesia has left the ranks of eloping nations and moved into the gory of middle-income countries. In the ess, it has transformed itself from an cultural and mining-based country into in which manufacturing and construction driving the economy. In just 12 years, onesia's industrial sector has grown from percent of its economy to 22.3 percent, e agriculture has decreased from 23 ent to 18 percent and mining has dropped 20.8 percent to 9.6 percent. Reflecting country's new status as an emerging nomic power, Standard & Poor's now rates onesia as a "BBB" investment risk, up "minus BBB." The new rating, coupled a foreign-investment deregulation kage passed by the government in June , has helped attract more foreign capital. f mid-November 1994, foreign investment increased 192 percent over the parable period the year before, and estic investment has increased by 27.6 ent. A negative result of the strong nomy has been an inflation rate of 9.2 ent, which exceeds the targeted rate of 5 percent. Inflation, together with increases ey U.S. interest rates, pushed Indonesia's rest rates up by 1 to 2 percentage points in second half of last year.

ice construction: In the fourth quarter last year, a little more than 1 million square feet of prime office space was completed in Jakarta, bringing the capital's office stock to 20.7 million square feet. This building activity pushed the vacancy rate up to 7.8 percent, from 6.9 percent. The building boom, though, continues; nearly 9 million square feet of office space is now under construction and scheduled for completion by the end of 1997.

Retail construction: Demand for new shopping centers remains high and 2.2 million square feet of retail space is scheduled to be completed in 1995. It seems as if every part of Jakarta is competing to build a new super- or mega-mall, some including recreational facilities and even theme parks. In the suburbs, it is now considered essential to build a super-mall of about 1 million square feet in every new satellite town.

Housing construction: With an emerging middle class and a robust economy, demand for housing remains strong. In 1994 a total of 124,000 housing units were sold and the prediction for this year is for 148,000 units. To meet demand, the government is loosening credit for housing loans through its official bank and private banks are following suit.

A new subway: With a city population of 9 million and a metropolitan population double that, Jakarta faces a major transportation challenge every day. Between 6 a.m. and 10 p.m., 9.7-million vehicle trips are made every day—and 51 percent of these are in private vehicles. Traffic often grinds to a halt. Earlier this year, the governor of Jakarta announced a plan to build a new integrated transportation system using three-tiered "roads" with highways on top, conventional streets on grade, and subways below. The first segment, 8.7 miles long, will connect the densely populated area of south Jakarta with the central business district and north Jakarta. To be built by a consortium of government and private companies, it is scheduled to be completed by 2000 at a cost of $1.3 billion.

Local feelings: While Jakarta seems to be a magnet for foreign architects, local firms sometimes feel left out. Often relegated to doing production documents, some Indonesian architects feel their expertise in the local culture and design traditions is overlooked. According to Sonny Sutanto, an active member of the Indonesian Institute of Architects, many foreign architects apply styles and designs inappropriate to Indonesia.

Spotlight on satellite cities: In the last five years, the face of greater Jakarta has changed with the creation of a number of satellite cities in outlying areas. As old kampungs or villages are cleared in the central city to make way for skyscrapers, many of the people who lived there are moving to the suburbs. Using relocation money from downtown developers and new earning power from better jobs, these people are pioneering a series of self-contained towns being built by private developers. While the typical size of these satellite developments is between 500 to 700 acres, the newest one, called The Legend City, is 2,000 acres. The two largest developers of new towns are: Sang Pelopor (Pioneer) Group and Lippo Group.

On the boards: The developers often hire American or Australian firms to master-plan the communities and do much of the design work. Sang Pelopor has projects around Jakarta, in Tangerang (20 miles west of Jakarta), and Surabaya (the capital of East Java). In Tangerang alone, the company has five new satellite towns underway: Bumi Serpong Dami with 140,000 units of housing, Bintaro Jaya with 9,400 units, Citra Garden with 4,500 units, Pantai Indah Kapuk with 10,000 units, and Citra Grand City with 17,000 units. At its 30,000-unit Lippo Village in Tangerang, Lippo Group built shopping malls, an office compound, schools, a hospital, a golf course, and even a horse-riding academy before putting up houses. When finally offered, the first 1,100 houses sold out in three days.

Gatot Surarjo, principal of the architecture firm PT Arga Calista Disain

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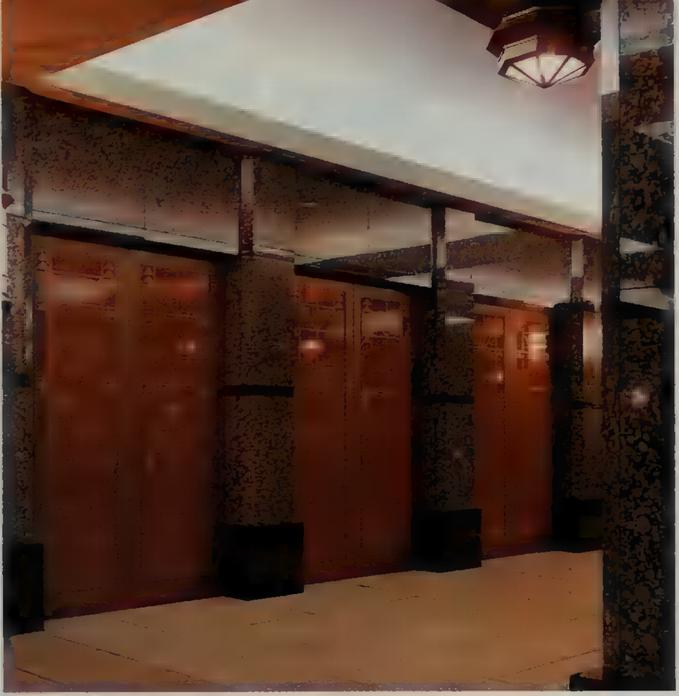

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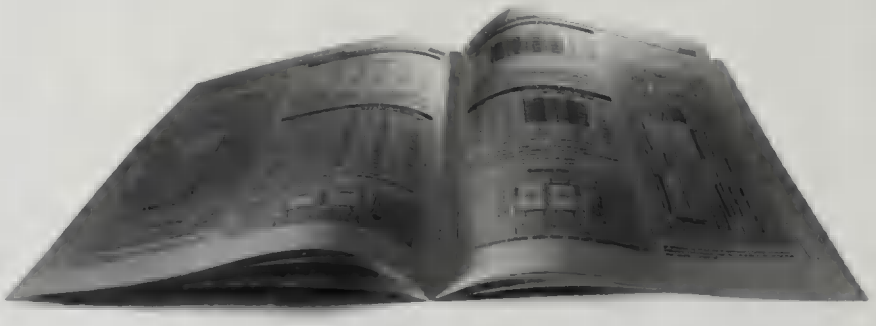

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wan

‹ports Fuel Economic Growth, ıt Building Slows

, 1994: $268.6 billion
growth, 1994: 6.5 percent
ected GNP growth, 1995: 7.1 percent
ation, 1994: 4.1 percent
ulation: 21.1 million

omic overview: Taiwan's economy, one e world's best performers during the past de, is expected to grow faster this year in 1994. "Export growth, particularly to n, is helping to stimulate the economy year," says Chou Ji, of the Chung-hua tution for Economic Research. With the nese yen appreciating 10.7 percent nst the Taiwan dollar in the first five ths of 1995, products from Taiwan are per for customers in Japan. Taiwan's rts during the first four months of 1995 ed 25 percent from the year before, hing $34.5 billion. Expansion in high-tech stries, along with Taiwan's proximity to fast-growing mainland China, has enhanced the country's attractiveness to foreign investors, says Lynn Sien of the American Chamber of Commerce in Taipei.

Construction activity: Building remains brisk, even though properties are coming into a market plagued by oversupply. But things may be slowing down. The government's index of construction activity, which measures floor space being built, rose 12.6 percent during the first quarter of 1995. That's down from a rise of 28.9 percent for all of last year. Applications for building permits actually dropped 0.7 percent in the first quarter, following a decline of 14.2 percent for all of last year. The market is slowing in part because of high vacancy rates caused by speculative residential building during the past several years. The commercial market has also gone slack after excessive building spurred by developers' fears of new floor-area regulations that would reduce potential floor space, explains Huang Wanchen, a principal of HPH Architects and Planners. In Taichung, Taiwan's third-largest city with a population of around 800,000, the vacancy rate for offices is as high as 50 percent, says C.C. Chiang of Ever Fortune Industrial, a big developer. Government work has also slowed, due to a one-third cutback in the $300-billion Six-Year National Development Plan.

Searching for style: At issue among Taiwanese architects today is the development of a local design identity distinct from that of the West. Creating such a design vocabulary "is the major challenge facing us in architecture right now," says architect Carl Shen.

Russell Flannery, correspondent for Bloomberg Business News in Taipei

iland

ıilding Activity Focuses on Infrastructure

, 1994: $146.5 billion
growth, 1994: 8 percent
jected GNP growth, 1995: 8.7 percent
ation, 1994: 5 percent
ulation: 60.3 million

omic overview: Thailand continues to ain impressive growth, expanding overall omic activity by 8 percent last year. ough inflation jumped from 3.3 percent in to 5 percent last year, it is expected to ease slightly this year. Like many rapidly eloping nations, Thailand has a population is growing remarkably fast (1.6 percent in alone) and becoming increasingly urban percent). By 2005, the population is likely each 70 million.

struction activity: While overall struction grew 12 percent last year (up 8.7 percent in 1993), most of the activity infrastructure work. Meanwhile, private-or construction was down substantially, to a saturated office market. Building nits in Bangkok decreased a record 22.2 ent during the first nine months of last . Growth continued in the provinces, gh, with permits up 12.1 percent.

sing: With Bangkok's notorious traffic congestion only getting worse, proximity to work has become increasingly important. Although houses in the suburbs are still favored by Bangkok residents, longer commuting times are making centrally located high-rise condominiums more attractive. Estimates by property consultants Richard Ellis (Thailand) Co. show housing construction reaching 143,350 units in 1994, including 54,770 multi-family units. In the past, most condominium projects were luxury developments aimed at the wealthy, but today a majority of for-sale apartments are being bought by an emerging middle class.

Mega-city: Bangkok remains very much the focus of economic activity, as well as home to more than one-tenth of the nation's population. There is little indication of a substantial move in Thailand toward decentralization. At the same time, infrastructure development is patently failing to keep pace with growth. By the start of the 21st century, Bangkok is expected to have a population of some 12 million and will rank among the world's 20 mega-cities. In a speech at a conference on "Cities and the New Global Economy," in Melbourne, Australia, last November, Dr. Sumet Jumsai, a leading Bangkok architect, admitted the city was "already in chaos" and posed the question "whether it will grow into an efficient mega-entity or a mega-shanty." Sumet remarked that "like so many other cities in the developing economies of East Asia, Bangkok is polluted but vibrant, full of energy and ever rapidly growing, yet without proper infrastructure." Remarkably, in spite of all this, "it seems to work," he noted. According to Sumet, East Asians tend to "look beyond the current negative conditions and accept or envision mega-cities in a very positive or even aggressive way." While mega-cities often seem to be on the way to catastrophe, says Sumet, they find ways to adjust—socially, psychologically, and physically—so that the "end" never really comes. To illustrate his point, Sumet cites Hong Kong, which was a "refugee squatter twilight zone" just 50 years ago and to the Tokyo-Osaka megalopolis, which shows that an urban entity of more than 50 million people can be highly organized, clean, and efficient.

John Hoskin, Bangkok-based journalist

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beauty
longevity

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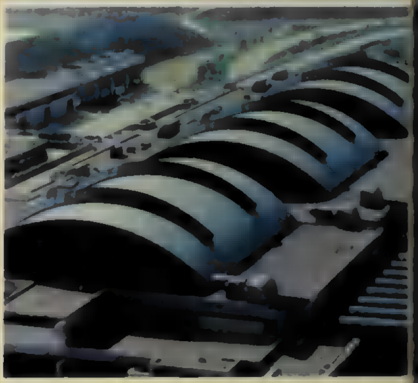
JAPAN

Dazaifu Treasures Museum
Tokyo, Japan
Architects: Satoh Total Planning and Ar

KOREA

Keishu Art Museum
Seoul, Korea

UNITED STATES



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ralia/New Zealand

owth May Peak This Year

, 1994: $298 billion (Australia); $27
n (New Zealand)
growth, 1994: 4.3 percent (Australia);
rcent (N.Z.)
cted GDP growth, 1995: 3.4 percent
ralia); 5.8 percent (N.Z.)
tion, 1994: 4.0 percent (Australia); 1.1
nt (N.Z.)
lation: 16.5 million (Australia); 3.4
n (N.Z.)
omic overview: In both countries,
mic recoveries have taken root and are
nuing. The more buoyant of the two is
Zealand, whose economy grew 5.2
nt last year, up from 2.9 percent in 1993.
asts call for the New Zealand economy
ak this year at 5.8 percent growth and
trail off to 3.5 percent growth by 1997. In
ralia the recovery, now in its third year,
d continue for another 18 months.
tion is also gaining steam in both
tries, rising from 1 percent in Australia in
93 to an expected 6 percent in 1995-96.
truction: The resulting high interest
should slow construction activity,
cially in the residential sector. In
ralia, for example, housing starts are expected to decline 8 percent this year and perhaps 20 percent next year. Growth should continue, though, in Australia's non-residential sectors, with office buildings, retail, and hotels leading the way. As government cuts back on capital works to reduce budget deficits, the healthcare and educational sectors are expected to decline. The slowdown in the Australian economy will affect its neighbor, since 50 percent of New Zealand's non-commodity manufactured exports go there.

A splintered profession: In the wake of the extended recession of the late 1980s and early 1990s, the structure of the architectural profession in New Zealand has changed dramatically, says Alan Purdie, general secretary of the New Zealand Institute of Architects. All but a handful of the large firms have met their demise, spawning smaller groups and a large number of solo practices. After some difficult years, most architects have made the transition to smaller practices and are finding work on adaptive-reuse and urban-renewal projects.

Housing: In the face of decades of urban sprawl and the "large backyard syndrome" that affects Australian home buyers, urban planners are urging developers to build "smart suburbs" with higher-density housing. According to a report by the ministry of housing, Australia's low housing densities of about 4 units to the acre result in an inefficient use of land and infrastructure. The recently completed Crown Street development in Sydney, however, is viewed by some experts as a model for future medium-density housing. Designed by the Travis McEwen Group, the project draws its character from European and local housing blocks.

Spotlight on Wellington's waterfront: In New Zealand, the emphasis on higher-density development can be seen in both Auckland and Wellington, where inner-city districts are the focus of renewal efforts. To attract more tourists, Wellington is expanding its waterfront with a major development along Lambton Quay that will include apartments, shops, and leisure activities. It will also feature the $90-million Museum of New Zealand, designed by Jasmax Architects to express the overlapping of European and Maori cultures.

Andrea Fraser and Graham Jahn of Jahn Associates Architects in Sydney

th Korea

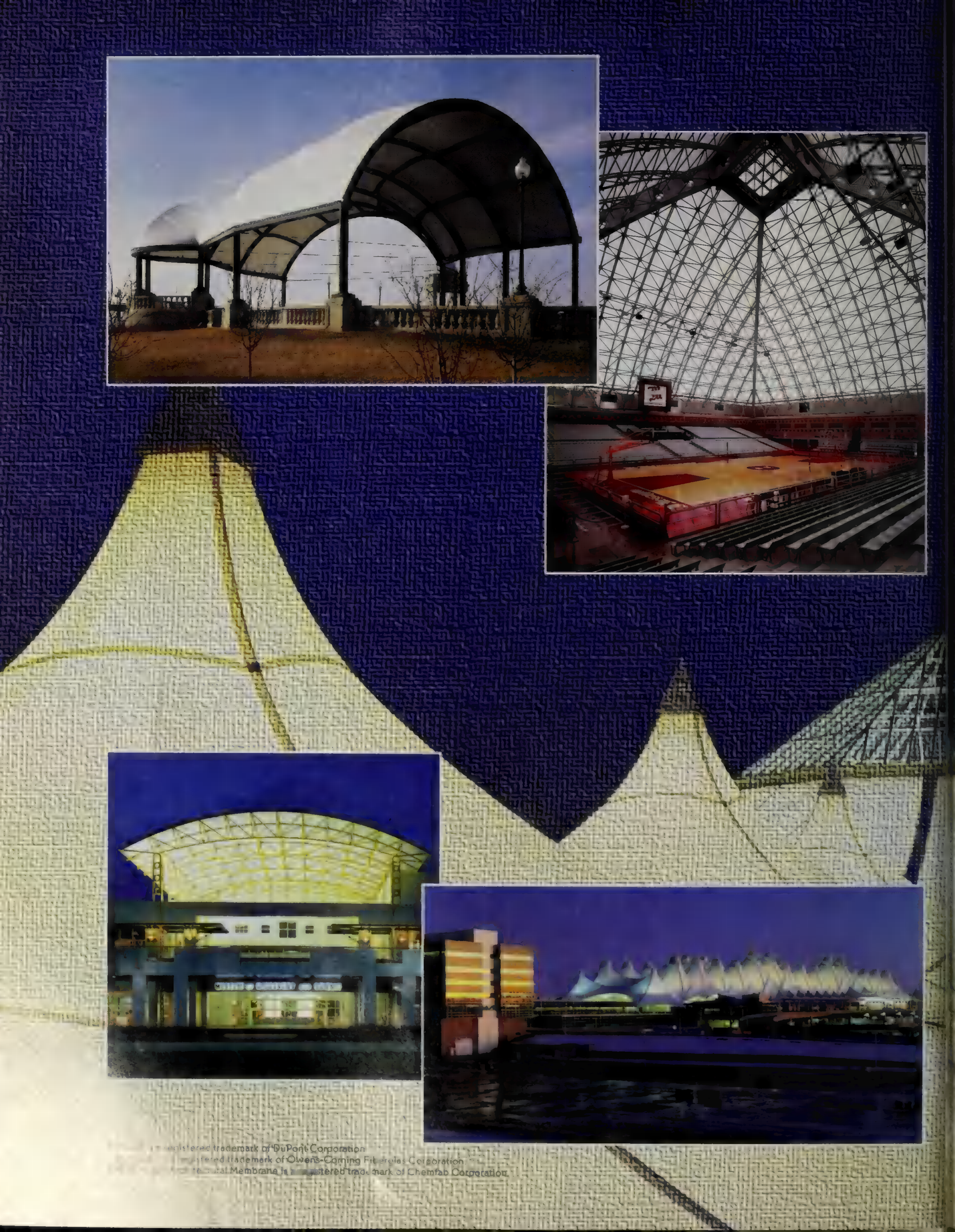
w Rules To Reduce Barriers

, 1994: $377 billion
growth, 1994: 10.5 percent
ected GNP growth, 1995: 7.5 percent
tion, 1994: 5.6 percent
lation: 44.8 million
omic overview: The South Korean
rnment hopes to maintain the current
rate of economic growth until the country
ves the status of developed country. One
in the government's plan is to increase
apita GNP to $10,000 in 1995. It also
s to join the Organization for Economic
eration and Development, the so-called
countries" club. Another key to South
a's future will be its membership in the
World Trade Organization, which will
ire it to lower tariffs and barriers to
gn investment.
truction activity: Much of the building
ity in Korea is being led by a few large projects in Seoul, including the development of satellite towns around the capital, the building of mixed-use sub-centers within the city, and the redevelopment of low-income neighborhoods into higher-density districts with high-rise apartment towers. Although construction of office buildings is outpacing demand by a small margin, the price of office space has yet to soften. In the residential sector, 477,000 apartments and 160,000 rowhouses were built last year.

Architectural reform: In an effort to reform Korean architecture, a group called Gun Mi Choon (Korean Architects Planning for the Future) has been active in the profession. The group has been successful in updating old building regulations, many of which placed unnecessary restrictions on private building activity. The group also hopes to make clients and architects more receptive to the esthetic aspects of design, not just issues of cost. As a result of the new GATT treaty, Korea will have to open up its professions, including architecture, to global competition. While many local architects see this as a serious threat, others hope it will help push Korean architecture forward.

Lift off: To help it become a hub for regional travel, the country is set to build a new international airport for Seoul. After a design competition was held, C.W. Fentress J.H. Bradburn and Associates in association with Baum Architects, Hi-Lim Architects, Jung Lim Architects, and Wondashi Architects were selected for the 11.6-million-square-foot project. Construction is to start this summer and be completed by the end of 1999.

Seock Jae Yim, professor, Ewha Women's University, Department of Architecture



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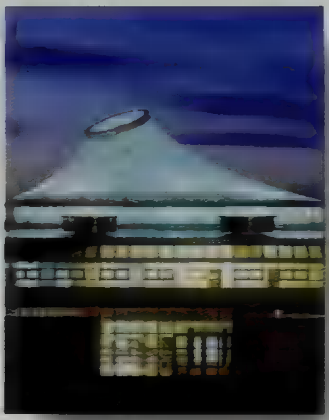

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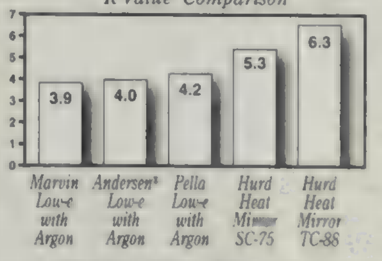
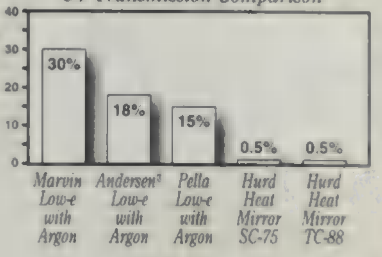


UV Transmission Comparison



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untry Develops Faster Than Planned

, 1994: $69.6 billion
growth, 1994: 8.7 percent
ected GDP growth, 1995: 9 percent
tion, 1994: 3.7 percent
lation: 19.05 million

omic overview: Breaking out of sion in 1987, the Malaysian economy has n at an annual rate of more than 8 ent ever since. Last year, the figure was ercent and this year the projection is r to 9 percent. Prime Minister Mahathir amad, whose coalition has ruled since endence in 1957, says Malaysia is on to becoming a fully developed country er than the 2020 target he set in 1990. of Malaysia's 19 million population—of n 1 million are foreign workers—worry growth itself has become a god. But r government officials are adamant that nual 7.5 percent hike in GNP is inable. They point to their success in ining inflation—3.7 percent last year and cted to stay under 4 percent this year. t's more, they say, the federal budget is in lus for the second successive year. her differentiating it from countries such exico that have seen their fast-growing omies crash, Malaysia has the fifth est level of foreign reserves anywhere s one of the least indebted nations in the loping world. But there are worries— ipally, the soaring current account deficit e balance of payments and how this will t interest rates and the value of the ysian currency. GT Management, one of egion's biggest fund managers, predicts a ible devaluation of the Malaysian ringgit, deficit is not cut.

ign investment: The government says eficit is manageable because it is more made up for by the inflow of foreign s, both portfolio investment and the stments of foreign companies in ysia's booming manufacturing sector. r flagging in 1992 and 1993—evidence China, Vietnam, and others were proving essful competitors for foreign stment—Malaysia's figures in this gory jumped 44 percent last year.

struction: A booming economy leads to a ing construction sector. This year, Bank ara, the central bank, is predicting ■ 15.2 ent growth in construction, even higher the projected 13 percent expansion in the ufacturing sector. Activity should stay strong in both the office-building and industrial-facilities sectors throughout the country. The star performer is certain to be residential, as Malaysians scramble to own a piece of a booming economy.

A warehouse by Architecture Bureau typifies a new generation of light-industrial facilities

Balancing act: All this building has prompted some worries that too much activity can be ■ bad thing. In March, the government responded by saying it would make sure that big infrastructure projects are not bunched together. Work on the proposed new administrative capital at Putera Jaya, for example, will not start until work on the nearby Kuala Lumpur airport is finished in 1997 (see story, page PR36). Property valuer Abdul Rahim, says the new airport at Sepang, 30 miles south of the capital, and the adjacent Putera Jaya new town will move the focus of Kuala Lumpur south and lead to a new round of building activity.

Foreign competition: A construction boom and a shortage of architects has made Malaysia an attractive place for foreign firms. While the U.S. has 5.3 architects per 10,000 urban population, Malaysia has only 2.9. Plenty of work and increasingly sophisticated native architects have made local firms more open to foreign competition.

Spotlight on Johor Baru: Traveling across the three-quarter-mile-long causeway connecting Singapore to Johor Baru, Malaysia's southernmost city and capital of booming Johor state, is a trip back in time. Like Singapore of yesteryear, Johor Baru is a jumble of shophouses and flaking municipal buildings. But over the next 20 years, a part of Johor Baru will come to mirror Singapore's ultramodern image. Construction started this year on JB Waterfront City, a new central business district that will include a grand plaza ringed by five office towers of up to 40 stories, shopping malls, three hotels, and a convention center. A palm-lined promenade will connect the commercial district to a residential area with 1,560 condominium units. Hong Lee Pee, chairman of Malaysia's Pilecon construction, calls JB Waterfront City "one of the greatest urban-development projects in Asia." Pilecon is the master planner of the project, while Johor Coastal Development, ■ subsidiary, is the developer.

Built on platforms: The project will include 10.8 million sq ft of commercial space—more than three times the area available in the existing city center. While Singapore razed many of its old neighborhoods to build its modern business core, Johor Baru plans to preserve as much of its heritage as it can. By building on platforms resting on stilts in the sea, the city will create a modern complement for its existing areas. The piled-platform construction has several advantages over more traditional land reclamation, such as allowing construction in phases and not having early tenants look out over large expanses of mud. Although Johor state has ■ new governor and there is some talk that the project may be scaled down, analysts say it has ■ good chance of success.

Sid Astbury, correspondent for Asian Business *in Kuala Lumpur*

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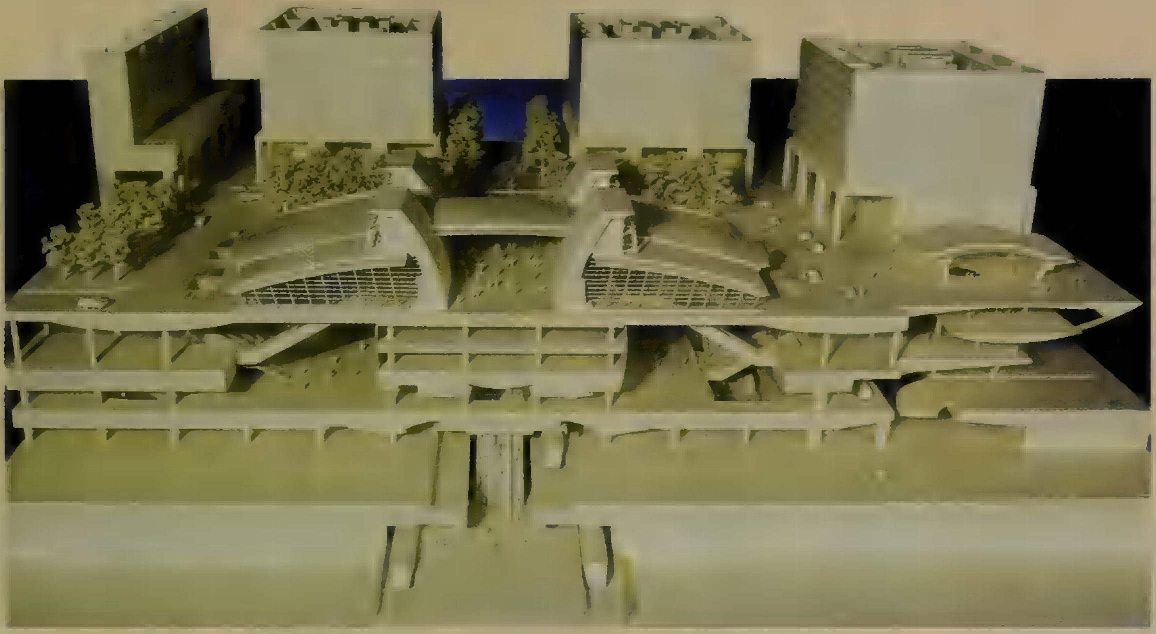
rport Fuels Adjacent Development



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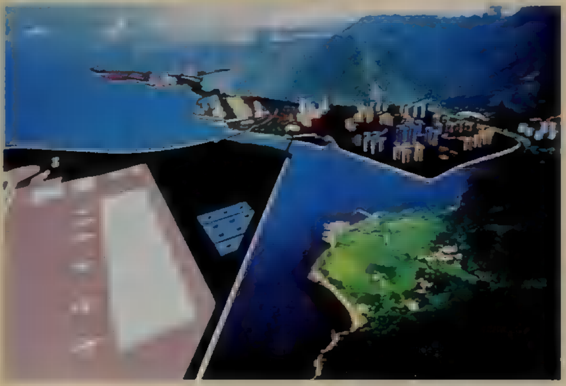
Kowloon Station, designed by Terry Farrell, will connect rail lines with the new airport.

, 1994: $116 billion
growth, 1994: 5.5 percent
ected GDP growth, 1995: 5.5 percent
tion, 1994: 8.8 percent
ulation: 6 million
omic overview: What a difference a
makes! Just last year, Hong Kong's stock
ket, which is heavily weighted toward
erty issues, was in the doldrums. Nego-
ns between Britain and China on funding
e stalled $21-billion Chek Lap Kok air-
were at an impasse, and the property
kets (both commercial and residential)
falling after setting record highs. Local
itects were understandably angst-ridden,
if they were making plenty of money off
nsive projects in one of the world's
est property markets. Today, the new
rt is moving ahead (albeit with periodic
-British spats), the stock market has
ed nearly 30 percent, and rents and pro-
y prices have at least stabilized.
rding to government economist K.Y.
, GDP is expected to rise by 5.5 percent
year and continue at about 5 percent
th to the end of the century.
etary matters: Inflation has been more
roblem, rising from 8.8 percent in 1994 to
pected 9.5 percent this year. Hong
's decision to peg its currency to the U.S.
r has added to the problem, dragging the
dollar down against trading partners like
n and Germany. Overall, the territory's
omy looks sound and the government has
n a hard line on new public spending.
ign investors, who fled the local stock
ket after the Mexican debt crisis,
rned in late spring.
estate market: Property prices and
s, which were soaring at a frightening rate
ercent per month a year ago (and leading
lk of a corporate exodus for Singapore,
a Lumpur, and other venues), have fallen
much as a third from highs set in April
. Luxury apartments in the Mid-Levels
ict of Hong Kong Island now go for about
0 a square foot, down almost 10 percent
last year. Commercial rents are down
y as much as 15 percent in the Central
ict. Many analysts say the downturn is
ly a return to sanity and that a correction
althy in the long run.
tics: With two years to go until Britain
ls over Hong Kong to China on July 1,
, things could still go badly wrong. Any sign of political trouble in China could cause a panic locally, as happened in 1989 after the Tiananmen Square massacre. But so far, things look good and the increased number of people returning to Hong Kong is an indication of positive business sentiment.

Construction activity: In 1996 some 5 million sq ft of new grade-A office space will hit the market, on top of 2.2 million sq ft being added this year. Until all this comes on-line, though, rents for prime space remain as high as $155 a sq ft, compared to $54 in Singapore. On the residential side, some 42,000 units came on line in 1994 and another 50,000 are expected to do so this year and next.

Spotlight on Chek Lap Kok Airport: With Sir Norman Foster's $1-billion terminal as its engine, the new airport at Chek Lap Kok is pushing forward a series of major projects, including a new town, new rail stations, and all sorts of development on vast tracts of reclaimed land. One high-profile public project now underway, thanks to the resolution of the airport dispute, is the new Kowloon Station railway junction, which will be a major trans-port interchange for the MTR (subway), the Kowloon-Canton Railway, and the new airport railway line. In addition to acting as an inter-change for the three rail lines, the station will provide airport check-in, bus, and road trans-port, and an 11-million-sq-ft air-rights development with hotel, office, retail, and resi-dential components. The above-ground, mixed-use development, masterplanned by Terry Farrell & Company, will face three public gardens and center around a split-domed station building, designed by Farrell as well.



Tung Chung, a new town for 200,000 people, will be built across from the new airport.

Local complaints: Such major public projects should dampen, at least temporarily, the biggest complaint of local architects: that Hong Kong's tight-fisted developers aren't interested in creative design. The airport projects, though, may have only limited impact on smaller commissions. "I think architecture in Hong Kong is at a pretty low standard," grumbles Nelson Chen, of Wong Chen Associates. Some of the complaining may be overdone. Says Tunney Lee, head of the architecture school at Chinese University, "The opportunity is there for more creative work in Hong Kong. It's true that architects here have had a hard time being creative, but my guess is that a lot of architects who *could* push developers *won't* push."

David Lindorff, correspondent for Business Week *in Hong Kong*

Soaring Yen Shackles Economy and Construction

GDP, 1994: $4.75 trillion
GDP growth, 1994: 0.6 percent
Projected GDP growth, 1995: 0.2 percent
Inflation, 1994: -0.2 percent
Population: 124 million

Overview: "The Kobe earthquake is on everybody's mind," says Dennis Cope, managing director of Hellmuth, Obata & Kassabaum's Tokyo office. The worst tragedy in Japan's postwar history, the January 17 disaster took 5,300 lives and left 300,000 homeless. Now fear of another one has citizens throughout the archipelago squirreling away bottled water, as well as inspecting their columns and shear walls. In theory, the quake's aftermath should spell opportunity for architects in Japan, where the demand for their services remains soft. But in reality, the rebuilding of Kobe will comprise only 3 to 4 percent of Japan's total construction investment—not enough to jump-start the country's sputtering construction industry. Spending on earthquake reconstruction may total as much as $87 billion, but most public outlays for infrastructure and housing won't come until 1996 and 1997.

Economic view: According to analysts at Salomon Brothers in Tokyo, Japan's economy is in worse shape than ever. While they predicted a post-quake rise of 2.3 percent in GDP for 1995—an improvement over last year's 0.6 percent increase—the skyrocketing yen has sent the economy into a tailspin, obliterating any economic boost from the earthquake. Now Salomon is predicting that the GDP will not rise more than 0.2 percent.

Commercial building: Private sector construction in general looks fairly bleak. Commercial work will remain sluggish in 1995, with little chance of picking up before fiscal year 1997, according to analysts at James Capel Pacific Limited. Since land prices are down 20 percent from last year (marking a 60 to 70 percent decline from their 1989-90 peak) and are expected to drop even further this year, no one is in a hurry to develop their holdings. And with Japan's economic uncertainty, few developers can afford to do anything but sit tight.

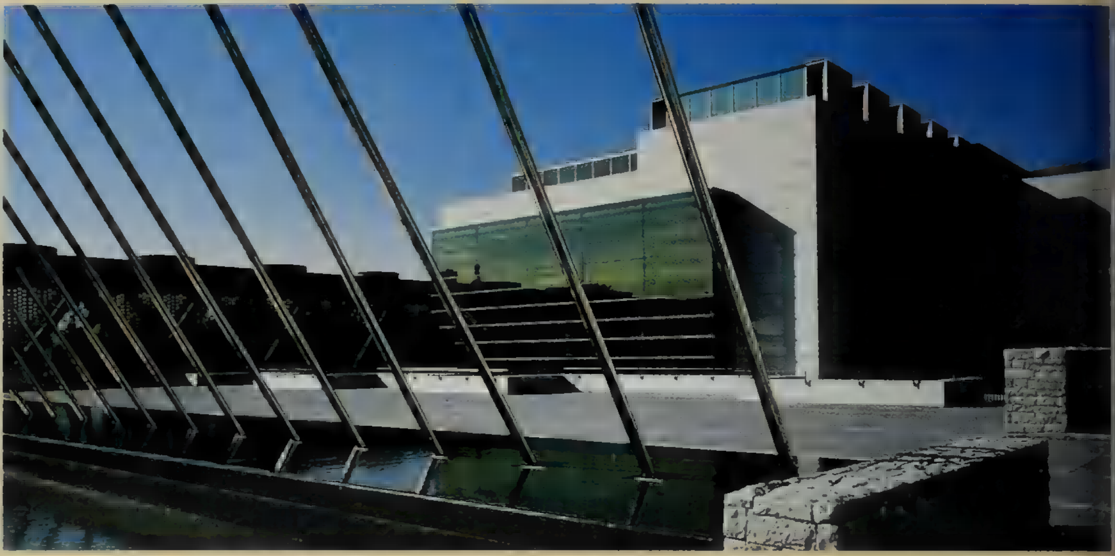
Residential building: Even the housing sector is hurting. According to James Capel, housing loan rates will remain extremely low [illegible] rise to 4.2 percent in 1995. Having [illegible] the Kobe destruction, many Japanese are wary of owning property. One area of growth is low-cost housing. "We're in an era of price busting," says Kathryn Findlay, whose firm Ushida-Findlay Partnership recently completed a prototype low-cost house for a development near Osaka. By using a polystyrene panel system, the architects were able to hold down the cost of the house. "We're hoping to make hundreds of them," says Findlay.

Public works: One of the few bright spots for architects countrywide is public works. The U.S. Embassy in Tokyo estimates that the rate of public construction over the next three years will grow 5 percent annually. Public investment from 1995 through 2004 is expected to reach about $74 billion—nearly doubling present levels. One manifestation of this trend is the continued outpouring of government funds for arenas, convention centers, and cultural facilities such as Tokyo's new Museum of Contemporary Art. (See Spotlight below). And plans are being made for even bigger developments such as the Yokohama International Port Terminal, being designed by competition winners Alejandro Zaera-Polo and Farshid Moussavi of London.

Opportunities for foreign firms: Activity in the public sector, though, may not yield opportunities for American designers. The Major Projects Arrangement between the Japanese and U.S. governments, which helped some American firms gain a foothold in Japan, is being phased out. In its stead, the "Action Plan on Reform of the Bidding and Contracting Procedures for Public Works" (Action Plan) went into effect in April. In theory, a positive next step, the Action Plan i designed to "make conventional procuremen procedures more transparent and non-discriminatory," according to a report by the U.S. Embassy in Tokyo. Although the Action Plan's contract volume is approximately $19 billion a year, American architects remain skeptical because access to the projects is fa from transparent and a mere 10 percent of t work will require architectural services.

Spotlight on modern art: Remarkably, Tokyo did not have a museum of Modern art until the Museum of Contemporary Art opened its doors in March. Designed by TAK Associated Architects, the 361,000-sq-ft facility contains galleries for temporary exhibits and permanent collections sandwiched between a stone-clad administration wing and glass-enclosed lobb Designed to be as transparent as possible, th lobby, with its monumental triangular trusse faces Kiba Metropolitan Park in the heart of the city's former timber market. Specialists i cultural buildings, TAK was founded in 1986 after it won the competition for the New National Theater now under construction in Tokyo's Shinjuku ward. The work of artists i present not only in the museum's galleries b in the very fabric of the building. Indeed, the exterior tilted steel poles, the trusses's punched metal infill panels, and the lobby's colored lighting scheme were all joint efforts of the architect and selected artists.

Naomi R. Pollock, RECORD's Japan corre-spondent


The Museum of Contemporary Art, designed by TAK, is Tokyo's first Modern art museum

THEY LEFT OUT A FEW THINGS WHEN THEY NAMED IT THE RING OF FIRE

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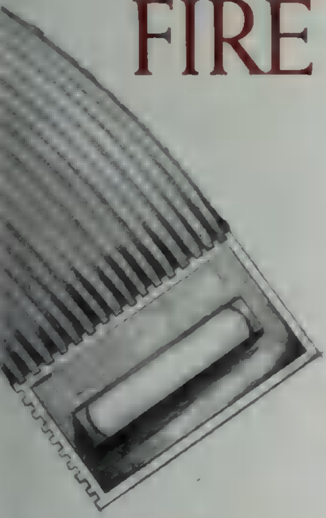

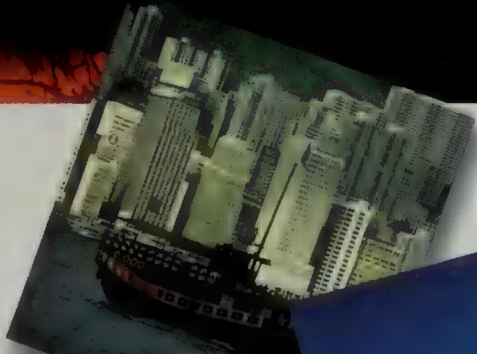

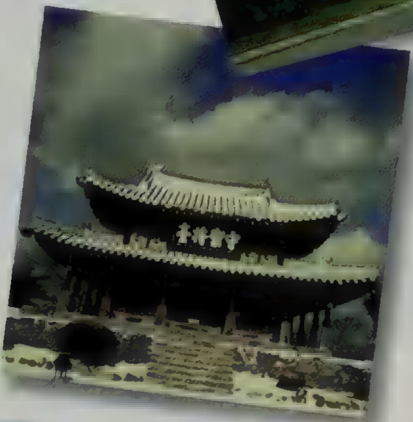

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Projects From Around the Region

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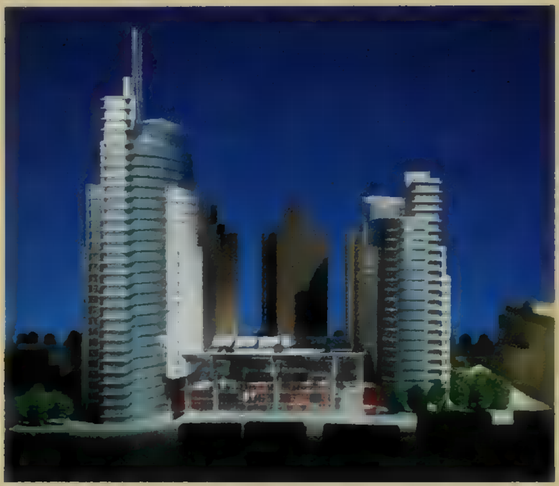
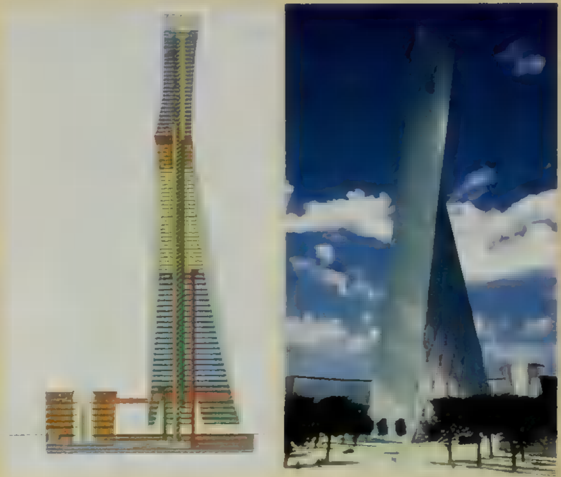
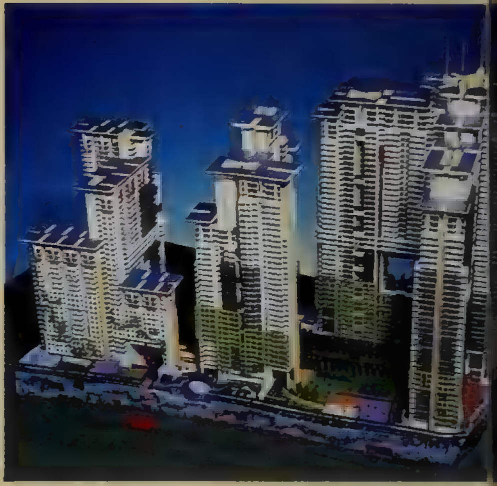


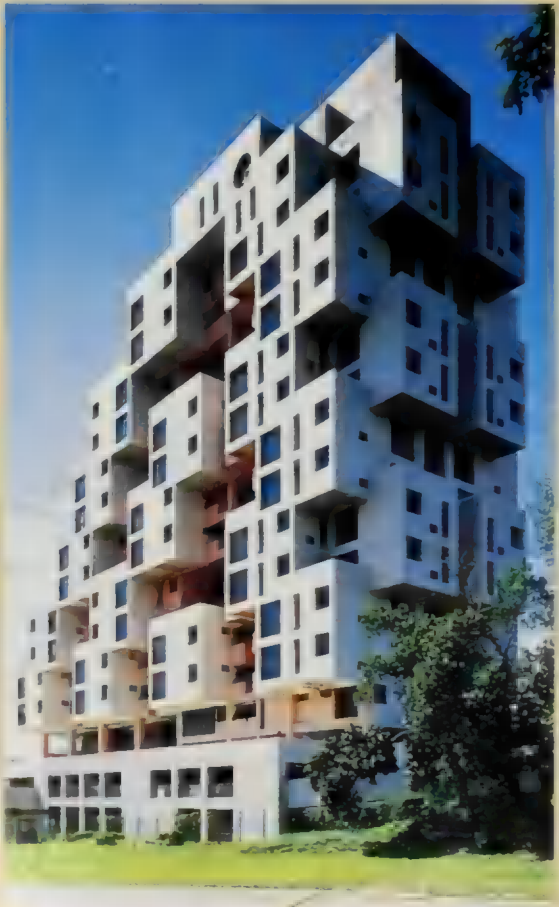
Euro-Asia City
Beijing, China
Skidmore, Owings & Merrill (New York)
Project type: mixed-use
Office component: two towers of 28 floors and 19 floors, with a total of 1.2 million sf of space
Retail component: glass-and-steel pavilion with mall below, totaling 345,000 sf
Housing: three towers with a total of 508,000 sf, set behind the office complex
Structural system: concrete for office towers and housing; steel frame for retail.



Nanjing International Center
Nanjing, China
Peter F. Poon and Fredenburgh Wegierska-Mutin (New York), architects
Project type: mixed-use, including office, hotel, retail, residential, and conference
Components: 88-story tower, 7-story annex
Design concept: Floors are triangular in plan and rotate at varying angles, creating a helical geometry. Top-floor dimensions are one-half those of the base.
Structure: composite concrete and steel.

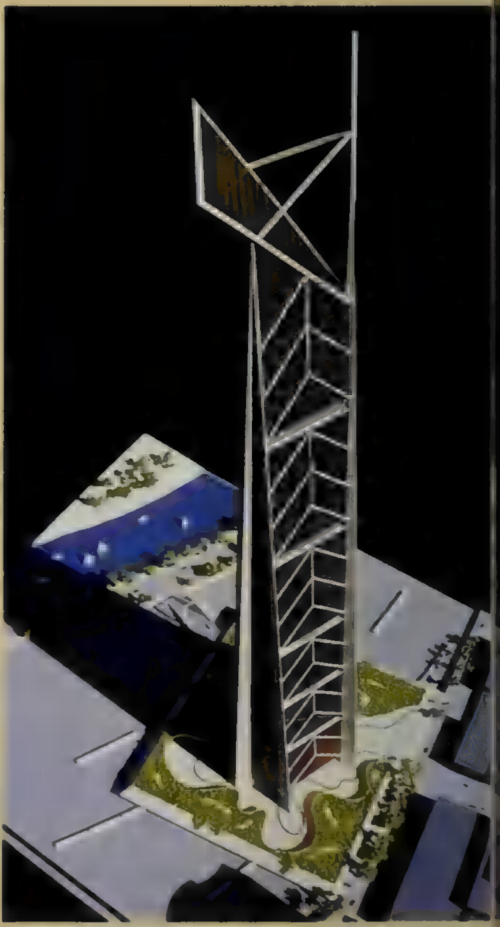


Housing at Tseung Kwan O
Hong Kong
Anthony Ng Architects (Hong Kong)
Mix of units: 2,000 apartments for sale
1,000 for rent to elderly and small famili
Other components: kindergarten, day ca
community market, social center for eld
activity center, rehabilitation center for
icapped
Height/area: 54 stories; 1.7 million sf
Environmental concerns: passive and a
environmental strategies included in des

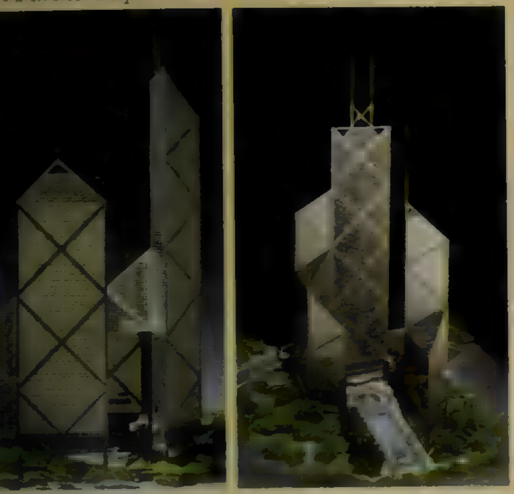


Balestier Point
Singapore
RDC Architects (Singapore)
Project type: housing with retail podium
Other components: two levels of parking just above retail floors; landscaped forecourt leading to main entrance of shopping complex
Design concept: Influenced by Moshe Safdie's Habitat project in Montreal, this 18-story building stacks housing modules off a central corridor. Apartments are mostly two- and three-bedroom units with terraces.
Costs: just 5 percent more than conventional.

Grollo Tower
Melbourne, Australia
Harry Seidler & Associates (Sydney)
Project type: mixed-use tower
Claim to fame: world's tallest building at 1,650 feet and 120 stories
Structural system: Six tapered reinforced-concrete columns carry the weight of all floors with the help of diagonal bracing attached to the core and the exterior.
Active skin: Photovoltaic cells in double-glazed curtain wall will generate electricity.

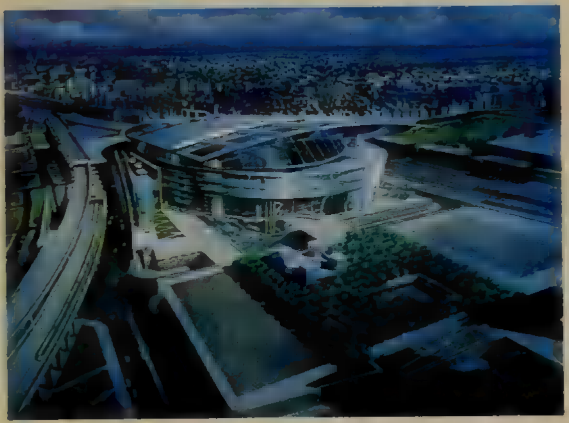


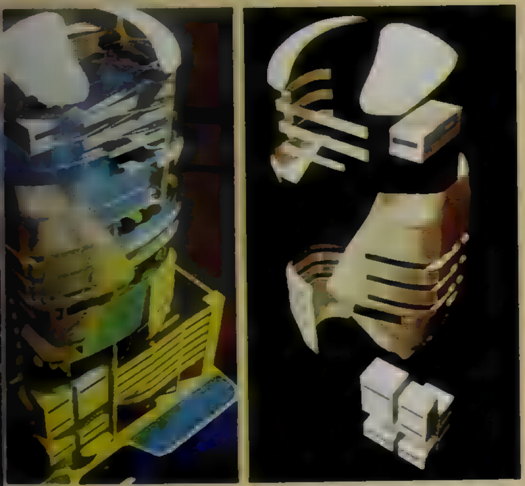
i Partnership



NI Center
karta, Indonesia
i Partnership(New York)
Airmas Asri (Jakarta)
oject type: mixed-use
jor components: two office towers of 62
l 45 stories, plus four-story commercial
lding, below-grade retail concourse, and
r levels of underground parking
oss area: 3.3 million sf
rtain wall: pewter-toned reflective glass
l metallic-gray aluminum.

The Saitama Dome
Tokyo, Japan
Ellerbe Becket (Kansas City)
Nikken Sikkei (Tokyo)
Project type: sports/entertainment complex
Components: domed stadium wrapped by ■ 250,000-sf entertainment center with restaurants, theaters, and virtual-reality facility
Design concept: Using moveable walls and seating sections, the stadium will be able to change from ■ 20,000-seat basketball/hockey arena into ■ 30,000-seat football stadium.





echniaga
ala Lumpur, Malaysia
. Hamzah & Yeang (Kuala Lumpur)
oject type: corporate headquarters
sign concept: Responding to its tropical
nate, this 19-story building employs
ssive-solar strategies such as perforated-
tal "shields" for sun shading. The tower
o features outdoor "sky courts" at various
els, extensive use of plants and trees, and
ms that facilitate natural ventilation and
luce dependence on air conditioning.

Koom Ho Art Museum
Seoul, South Korea
Tai Soo Kim Partners (Hartford, Conn.)
Context: small site on ■ gallery-lined street, facing the old Imperial Palace
Size: 28,000 sf.
Design concept: In deference to the palace, the architects pushed three of the museum's seven floors below ground and used restrained massing. The building is elegantly clad in stone selected to echo the historic character of its imperial neighbor.

Nobody House
Jakarta, Indonesia
Sardjono Sani (Jakarta)
Program: single-family house with three bedrooms, guest room, and two bathrooms
Structure: concrete with wood roof
Location: At the end of ■ road, a site that local people believe brings bad luck
Design concept: Instead of blocking or shifting the "bad luck" axis of the road, the architect takes it through the house and uses it to organize the plan and the structural grid.

Getting Paid When Working Abroad

By Katherine Kai-sun Chia

When an architectural firm is working half-way around the globe from its home base, getting paid can be a difficult matter. For foreign architects working in Asia, the situation is compounded by cultural and professional differences that vary from country to country.

"There are big differences in familiarity with the payment process," says Eddie Wang executive vice president of the Los Angeles-based Jerde Partnership, which is active throughout the Pacific Rim. "In Japan, Indonesia, Singapore, Hong Kong, and Taiwan, clients are familiar with standard U.S. practices," explains Wang. "In Korea, Malaysia, and China, clients are not always familiar." For the latter group, Wang says, "Thirty percent of your time is spent getting the project; 70 percent is spent educating your client about the process."

> *Architects must "understand the local culture from the design end to the business end."*

Methods and reliability of payment vary from job to job, client to client, and country to country. "Japan is one exception," says James Follet, vice president and managing principal of Gensler & Associates/International in San Francisco. "Japanese clients will pay because it's an issue of honor." In other countries, however, the risks are greater. Indeed, nearly half of the architects interviewed for this article mentioned having had difficulty getting paid on one project or another while working in Asia.

In some countries, when a foreign architect works through a local firm, payment can be guaranteed (for a fee) by the national institute of architects. For example, in Taiwan the Architectural Institute of the Republic of China can act as an intermediary to guarantee payment, but only when the prime contract is with a local firm; according to Follet, this system has worked well for his firm in the past.

Malaysia and Hong Kong have similar organizations that stipulate a fee schedule, but "nobody follows it," says Charles Lau, president of AM Partners in Honolulu, a 75-person office active in many parts of Asia. "The clients always find a way around it," explains Lau. Professional ethics codes in many Pacific Rim countries are limited to local architects. As a result, clients can exercise more leeway with foreign architects when setting up contracts. Lau recommends that architects pursuing work in the Pacific Rim "understand the local culture, from the design end to the business end. Once you cross international borders, many U.S. rules fall away and contracts may not always hold."

While negotiating styles vary from country to country "all Asians are good business people and if you don't operate with the same level of acumen, you can be taken advantage of," says William Karst, principal of Callison Architecture in Seattle. "They don't see it as deceit but as profiting from your stupidity."

Before signing a contract always verify the client's financial stability (and that of the other investors involved in the project) and track their reliability in paying consultants. "Regardless of their location, our clients tend to be people whose finances we can research," says Patrick MacLeamy, managing director, Asia/Pacific for Hellmuth Obata & Kassabaum (HOK). Do not hesitate to contact the client's local bank, not only to verify the client's credit records, but also to check the bank's stability.

When working in emerging markets such as China and parts of Southeast Asia, the most reliable method of payment is a "cash-in-advance" payment; the burden of risk is assumed by the individual contracting your firm. In places such as Singapore and Japan, an open account, in which you assume the entire risk by completing the contract before receiving payment, may be acceptable, depending on the client's track record.

A compromise between these two extremes, suggested by Claude Soudah, senior vice president at Seafirst Bank in Seattle, in the AIA's manual *Getting Paid: Strategies to Ensure Payment in Foreign Markets*, is a "letter of credit," undertaken by the client's bank, that substitutes the credit of the bank for that of the client. A "confirmed irrevocable letter of credit," in which an additional U.S. "advising" bank representing the archi tect has added its confirmation or guarantee is a further safeguard.

Getting a bank guarantee

"We require a U.S. bank guarantee (otherwise known as a stand-by letter of credit) ar a wholly viable local bank as prerequisite fo doing work," states Robert Djerejian, mana ing partner of Haines Lundberg Waehler, a New York City firm that is working on four projects in China with a combination of Chinese clients and outside investors.

Most firms avoid a letter of credit because it is costly and is not always enforceable in the Pacific Rim. Says HOK's MacLeamy, "We used bank guarantees early on in China, but now with the electronic transfer of money, payment is almost automatic. A letter of credit may be a good safeguard, but there are still many ways for a client to stop it fro being tapped, especially in a dispute." AM Partners' Lau says, "We have never used a letter of credit—if we can persuade the clier to go through that hassle, and if we feel suc precautions are necessary, we might as well focus on getting a large retainer."

Most firms require that all clients pay a retainer, usually between 5 and 25 percent of the total fee or one to two months' fee, depending on the client and the scope of the job, before beginning work. "It memorialize the business relationship," says MacLeamy. Retainers are customary in Japan and especially common in China, where an increasing amount of speculation has created a flurry o projects, many of which will not be realized.

The retainer should be held as a financial buffer throughout the project and large retainers should be negotiated for small projects. Jack Wang, vice president of Sam Chang Architect & Associates in Honolulu, generally asks for an up-front retainer of 10

Katherine Kai-sun Chia is a designer and writer in New York City.

ent with most clients in China. Gensler's ett cautions, "Asia is a 'show me world' informal design competitions often you to provide services up front." He gests that if a client cannot produce a iner, give the project a second thought.

ossible, make sure you hold the prime tract so payments go through you first. t U.S. firms hire a local architect not only echnical assistance but to research the nt's background, help with negotiations, serve as a watchdog. Says MacLeamy, we're not paid, they're not paid."

eneral, Pacific Rim clients are not famil- with American reimbursable fees (and unwilling to pay them), so it is important iscuss this ahead of time. Most clients ng to pay reimbursables prefer a lump- fee, so it is best to estimate expenses, them, and negotiate a budget acceptable he client. Although this method is accept- to many architects and simplifies some ounting procedures, Callison's Karst still fers to bill reimbursables separately. imbursable are not part of the fee, so to get them in makes our services appear e expensive to prospective clients."

tch out for taxes

en negotiating fees, make sure they are of local taxes and verify the local defini- of taxes. (In Singapore and Thailand s can be as much as 30 percent of the) Most clients are willing to pay taxes.

ayments stop, don't hesitate to hold work. epeated contact with the client does not r results, Karst suggests exerting pres- e by using personal contacts and mutual iness associates to influence the client. a is not a litigious society," says Karst. king legal action with a client may mar r reputation in that country." If peer pres- e fails, Karst recommends arbitration.

risks of doing business in Asia are higher n in the U.S., says Follett, because there o effective court system in many coun- s. When writing contracts in Southeast an countries, he always specifies Singa- e as the venue for litigation because the em there works fairly well. The courts in an and Hong Kong also are reliable. ■

Survey

Foreign Work Keeps Growing

American firms working abroad are bullish on international practice and see it growing in importance to them. According to a survey conducted by ARCHITECTURAL RECORD and the American Institute of Architects' International Markets and Practice Committee, billings from foreign work accounted for 25 percent of total billings last year for the 86 firms who responded. Three years ago, foreign projects represented only 18.9 percent of these firms' billings, and five years ago they were 16.3 percent. Looking to the future, 72 percent of the firms said they expected foreign billings to increase in 1995, while 87 percent said income from foreign work would grow in the next five years.

Broken down by size of firm, small practices (fewer than 10 employees) that are working abroad depend more heavily on foreign billings than do medium (10 to 99 employees) and large (100 employees and above) firms (graph, right top). This is probably because foreign projects tend to be big ones and so represent a larger percent of a small firm's total income. Income from foreign work, though, is growing in relation to that from domestic work for firms of all sizes—increasing from 11 percent of total billings five years ago to 14 percent in 1994 for large firms and from 24 percent to 36 percent for small firms. Respondents to this survey are almost equally divided among small, medium, and large firms, with each size accounting for between 32 and 35 percent of the total.

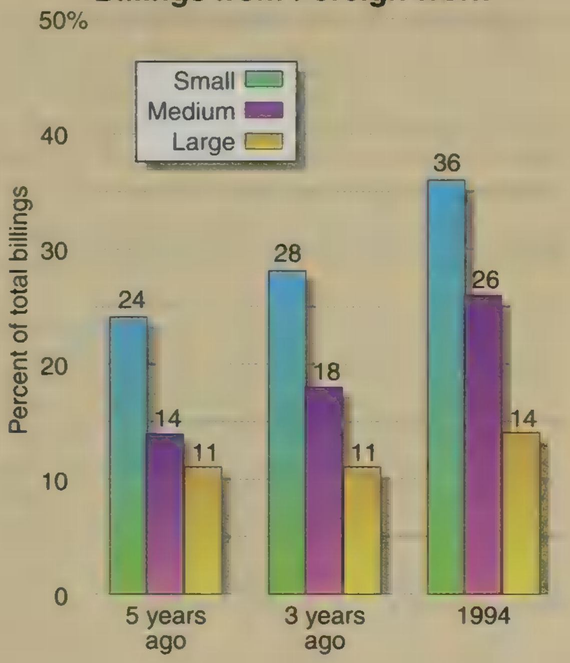
For American architects, opportunity is knocking most loudly in Asia. In terms of the number of projects landed by American firms, seven out of the 10 most active countries are in Asia (chart, right bottom). Topping the list is China, where 32 percent of the responding firms now have work and where 9.5 percent of all the foreign projects cited by respondents are located. Next in line is Mexico, followed by Japan, Indonesia, Korea, Thailand, the United Kingdom, Germany, Singapore, and the Philippines.

In terms of clients for overseas work, 18 percent are American companies with business abroad and 82 percent are foreign entities. The most common method of landing jobs abroad is through "client invitation because of firm's reputation or expertise," which was cited by 46 percent of respondents. Other important ways of getting work include, "association with an internationally active client" (18 percent), "marketing and contacts of local office" (14 percent), referrals from "local associate architect" (9 percent), and design competitions (6 percent).

The most commonly noted problems mentioned by architects working abroad include, "expense of doing business" (cited by 45 percent of survey respondents), "lose control over project after design development" (40 percent), "low fees" (35 percent), "deals fall through" (35 percent), and "getting paid" (35 percent). *Clifford A. Pearson*

(For all the results of this survey, send $25 to: Practice Survey, Architectural Record, 1221 Avenue of the Americas, N.Y., N.Y. 10020)

Billings from Foreign Work



Work by Country

Country	% of firms working there	% of all foreign projects
China	32	9.5
Mexico	29	5.7
Japan	22	5.1
Indonesia	21	6.2
Korea	19	5.6
Thailand	17	2.4
United Kingdom	16	5.8
Germany	16	4.9
Singapore	16	2.4
Philippines	14	2.4

Charts by Leonor Glynn

Shanghai Express

In the five years since it began its current building boom, Shanghai has set about the task of becoming a thoroughly new city—ready to have its fling with Modernism, complete with neo-Corbusian towers in park-like settings, mega-developments, and satellite towns. Articles in the official press wax poetic about all the construction, using cheerfully utopian rhetoric that seems naive to our jaded Postmodern ears. All this activity raises the question of whether rational city planning can take place at the accelerated speed made possible by the electronic revolution and embraced whole-heartedly by Shanghai.

Chinese newspapers report that 9,000 construction projects are currently underway in Shanghai. About 200 foreign architects are active or pursuing work in the city. Many large projects whose approvals would take years in the U.S. are proceeding from schematics to construction in a year or less. What makes Shanghai so important to study is that it isn't alone in its race to develop. Many of the same issues and planning challenges facing Shanghai also confront a number of rapidly growing cities in Asia and the developing world—from Jakarta and Bangkok to Mexico City and Bombay.

Grant W.K. Sung is an American architect who has been living in China for the last two years.

A new beginning

In April, 1990, with former Shanghai mayor Jiang Zemin at the hel
the central government, the Beijing authorities announced plans to
make Shanghai the "dragon head" of the Changjiang (Yangtze) Riv
Its aim was not just to restore Shanghai to its place as China's leadi
commercial city, but to turn the region into Asia's center for high-te
industry, foreign trade, and international finance.

Recognizing the difficulties of refurbishing old Shanghai, the auth
ties decided that the keystone of the city's reconstruction would b
the development of the Pudong New Area, a 202-square-mile area
the east bank of the Huangpu River. Pudong was touted as the opp
tunity to forge a city of the 21st century. In the last five years, mor
than $11 billion has been invested into transforming yesterday's
boggy farmland into today's vast construction site. Working in the
investment-crazed atmosphere of recent years, private developers
have wielded a great deal more influence than the city's overwork
planners. Momentum has rapidly overtaken orderly planning.

Tales of confusion and miscommunication abound. One story has it
that at the same time as the much-publicized 1992 masterplan com
tition for the Lujiazui financial district in Pudong (engaging Richa

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1

the fast track to growth, China's busiest city hitting some critical urban-planning bumps, ys author and architect Grant W.K. Sung.

ers Partnership, Toyo Ito, Dominique Perrault, and others), the lso invited four Shanghai design institutes to submit proposals ne 1.7-square-kilometer tract. The authorities concluded that all of the locally submitted proposals had merit. In a decision that ed diplomatic, if not architectural acumen, the best aspects of were combined and the result was accepted as the final master- —eliminating the need for any of the international submissions. ertheless, the relevance of the assembled masterplan was already ect. Even as design consultations were taking place, as many as ots of land had already been sold and were under construction.

orical background

whatever reason Shanghai was once called "the Paris of the nt," it certainly wasn't for its urban plan. The city inherited a ed skein of narrow streets from its days as a treaty port claimed e British after the First Opium War in 1842. Shanghai (the name ns "on the sea") was eventually partitioned into three districts, running east-west on one side of the Huangpu River: the Inter- nal Settlement, the French Concession, and the pre-existing ese "old city." Both of the foreign concessions were self-governed hence, self-planned. Each had its own network of roads. The y of these segregated communities on today's Shanghai is seen, not only in the city's distinctive medley of early 20th-century architecture, but also in the lack of major north-south arteries and the many misaligned, traffic-tying intersections.

Built largely on the opium trade, Shanghai was one of the 20th-century's first Asian economic "miracles," storied for both its commercial success and moral excess. By the early 1930s, the city accounted for more than half the industrial output of the entire nation. The next half-century of Japanese occupation, civil war, and Cultural Revolution impoverished the entire nation. Accelerating Shanghai's decline was Beijing's distrust of its capitalist roots and political loyalties. By the late 1980s, the central government's policies of extracting revenue and withholding investment had reduced the city's contribution to the national industrial output to just six percent. In short, too little money and too much revolution eliminated almost any chance for urban planning to take place, leaving the city burdened by its enormous population and inadequate infrastructure.

How do all those people get around?

On Shanghai's narrow streets pedestrians overflow sidewalks, competing for passage with all manner of vehicles—bicycles, pedicab rickshaws, taxis, buses, and trucks. Perhaps arcane, but nonetheless

Statue of an old communist official is dwarfed by new communications tower (1). Seen from the historic Bund, modern structures rise in the Pudong across the Huangpu River (2). On Nanjing Road, one of the busiest streets in the world, pedestrians, cars, buses, and bicycles compete for precious space (3 and 4).

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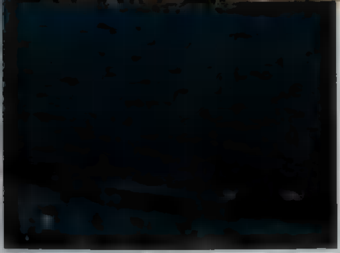

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"Seen from the river... the semi-skyscrapers of the Bund present impressively the facade of a great city. But it is only a facade..." W.H. Auden and Christopher Isherwood, 1939.

illuminating, is a statistic that measures per capita urban-transportation area (sidewalks and streets). Until last year's completion of the Inner Ring Road (the first of two beltways), this figure in Shanghai was 32 square feet—one-ninth of that available in Washington, D.C.

The city's recent prosperity and the consequent rise in personal income has led to an increase in bicycles. Last year, city leaders capped the number of bicycle licenses at 6.5 million, freezing the city's two-wheeled fleet at its current level. Although environmentally neutral by themselves, bicycles require more transit area per commuter than many forms of mass transit—thereby reducing average traffic speeds and contributing to congestion. Presently, bicycles account for 34 percent of Shanghai's traffic load. The city hopes to reduce bicycle traffic to between 25 and 30 percent of the total.

Until the opening this April of the first 12.5-mile phase of subway, Shanghai's only means of mass transit was its overburdened buses. According to the city's wish list, 224 miles of subway are to be developed. With extensive disruption of surface traffic and high construction costs, coupled with very low fares, subsequent phases of subway construction are in jeopardy, concedes Xu Daofang, senior engineer at the Shanghai Urban Planning & Design Research Institute. And even if the system is completed in full, it will meet only 13 percent of the city's mass-transit needs. Considering the cost of underground construction, city planners are examining options wi
street-level and elevated light-rail trains, which cost about one-fou
that of subways. Such trains, however, must run either on or abov
the city's existing narrow streets, introducing another competing
traffic mode and affecting the quality of the pedestrian experience

Addressing the city's urban form

While not disputing the need to upgrade the transportation infrastructure, some in the planning profession believe that the questio
urban structure must be addressed. In other words, what form sh
Shanghai take as it grows into the 21st century? Presently, Shangh
like most Chinese cities, takes the form of a single concentric deve
ment. Professor Zheng Shiliang of Tongji University suggests tha
instead of continuing the pattern of outward growth, adding layer
layer of buildings and beltways, the city should grow in a multicentric pattern, with satellite cities connected to the center by public-transit spines. According to Zheng, only after rethinking ur
structure can a logical pattern of transportation follow.

Last year, one Chinese official predicted that by 2010 every Chine
family would have a car—a doomsday prophecy, if you imagine 60
700 million high-emission automobiles hitting the streets. As with

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Busy streets have long been part of Shanghai's identity, as seen in the photograph of Nanjing Road (1) taken in 1939. The most famous street in town is still the Bund, seen in 1926 (2) and today (3 and 4). In a city with very little space for parks or recreation, the Bund's promenade is an important place [illegible] gathering.

consumer product, automobile ownership is on a meteoric rise anghai, reaching 400,000 in 1994 and possibly doubling that by While the city's planners expect new mass transit to bring some onmental relief from the threat of all these new cars, a lack of linated effort among the planning disciplines threatens to offset gains. And while land-use plans discourage the segregation of nercial and residential uses to reduce commutes, residential relo- ns to Pudong or other suburbs require displaced workers to longer commutes back into the city.

re the profits are

property values going up and up, the city's 13 urban districts have gnized that greater profits from land sales and tax revenues are ved by zoning for commercial land uses. Agriculture, being the profitable land use, has become the least attractive. The result is he city's greenbelt is being driven to the surrounding counties nd the (future) outer ring road. While the inclusion of public nities such as greenways, parks, and open spaces in the recent erplans of Pudong and other districts is a sorely needed ovement to densely built Shanghai, it is unclear whether such nitments will be enforced or will be sufficient.

ghai is bursting with China's greatest burden and its greatest resource—people. Although Chongqing recently became the nation's largest city with 15-million people, Shanghai's official population of 13 million is supplemented with as many as 5-million unregistered residents. Meanwhile, the socialist dream of providing adequate housing for all of China's population has proven elusive. Recently, housing reform (i.e. home ownership) has been promoted as a way of reducing the state's responsibility to shelter its citizens. But until rents increase beyond today's typical figure of $35 to $40 a year for a 600-square-foot apartment, housing purchases will remain rare.

While the central government has started to discount the purchase price of land to stimulate residential construction, district authorities and developers can still make more money from commercial development. As a result, many of Shanghai's commercial precincts are being emptied of residents and the richness and variety of the downtown areas are threatened. Silas Chiow, regional manager for the American architecture firm HOK, reports that his firm's recommendations for the Huangpu district call for keeping housing downtown.

While the stately buildings lining the mile-long Bund have been landmarked, most of Shanghai's smaller scale or lesser known architectural jewels—French Second Empire banks, Victorian houses, Art Deco hotels, even church buildings—are seen as standing in the

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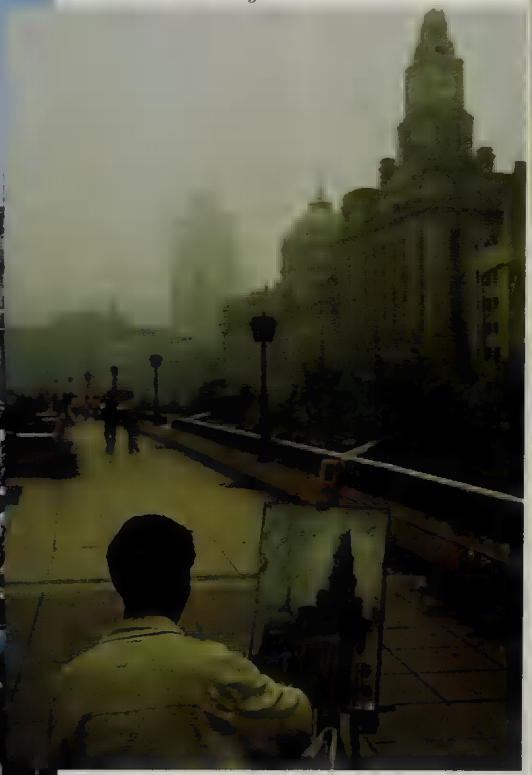

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There are about 9,000 building projects underway in Shanghai and around 200 foreign architects active or pursuing work in the city.

way of "progress." Many buildings that survived "redevelopment," the Red Guards, and the abuse and neglect of tenants are now threatened with a different kind of danger—"restoration" as tacky fast-food restaurants, night clubs, and karaoke bars. One architectural preservationist active in Shanghai says, "We used to tell them 'Restore it, restore it' when we saw these beautiful old buildings. After we've seen what's been done, we say 'Don't restore it—just leave it alone!'"

E.C. Liu, a partner with Fox & Fowle Architects, recalls that while designing the Shenghua Commercial Building, his firm paid careful attention to the selection of stone to match the brick color of its venerable neighbor, the historic Mu'en Church. After the selection was made, the architects returned to the site to find that "preservationists" had repainted the church red and the mortar blue.

Let a hundred towers loom

In addition to the urge to maximize tax revenues, some city officials have joint-venture interests in development projects in their districts. So it isn't surprising that nearly every point of regulation (height restrictions, site coverage, FARs) is open to negotiation (or bidding). In addition to blurring the line between public good and private gain, these practices lead to seemingly unzoned districts—a patchworked urban fabric with towers piercing through at random wherever enough relational (or other) capital has been expended. With everyone trying to maximize his profits, there are almost no small projec being built and the city's human scale at street level is being lost.

While most foreign architects agree that the pace of development h been too fast, some give passing grades to the city for establishing least a foundation of planning. "We've worked in a lot of Asian cities where there's little or no recognition of the need for long-term planning," says Craig Hartman, a partner in Skidmore, Owings & Merrill's San Francisco office, which is working on a 30-story tower Pudong. According to Joseph Caprile, a principal of Lohan Associates, the Shanghai authorities "didn't control development as much they could have, but they did some things right—like establish the Pudong area and preserve the Bund. Now they need to take a step back and assess the need for more infrastructure, as well as schools and cultural facilities."

For Shanghai's planners, a much-needed respite could be at hand. Projections indicate a likely slowdown in foreign investment this ye In addition, the city's Land Administration Bureau announced a moratorium on approvals for property sales for all of 1995. ■

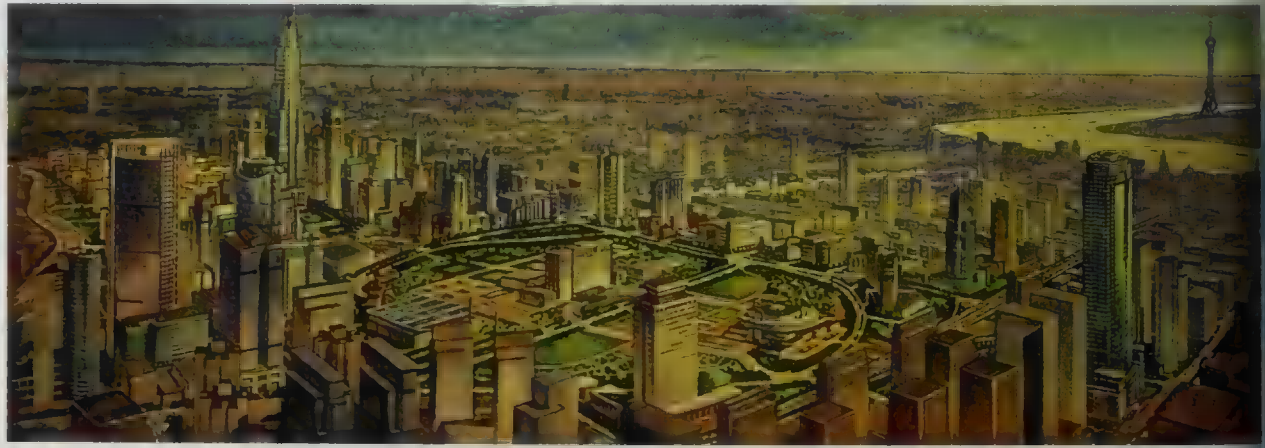
On the boards in Shanghai

1. Huangpu District Masterplan; HOK. Encompassing more than 3.7 million square feet in the heart of the city, this district includes the Bund, Nanjing Road, and People's Park. HOK will provide a conceptual master plan, then design guidelines and zoning regulations.

2. Shanghai International Plaza; Kaplan/McLaughlin/Diaz and East China Architectural Design, Research Institute (ECADRI). This 1.5-million-square-foot project combines a 45-story office tower with street-level retail arcades, a shopping atrium, and a central plaza.

3. Ocean Light Tower; SOM/S.F., and ECADRI. In Pudong, this 30-story office is attached to a retail podium. Construction should start early next year.

4. Pudong Financial Tower of the Industrial and Commercial Bank of China; Fox & Fowle/Gluckman/Liu, and ECADRI. This 27-story tower pairs a curving glass-and-metal slab with a more solid slab.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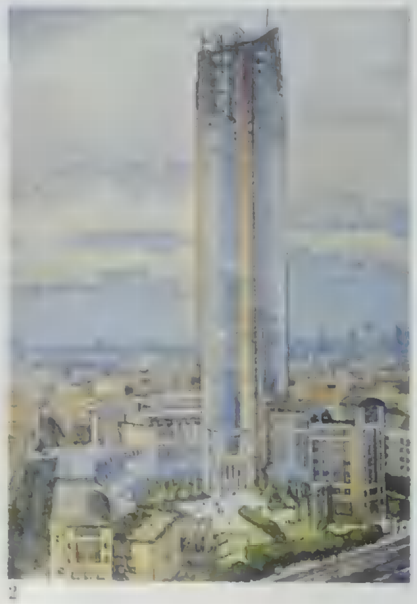
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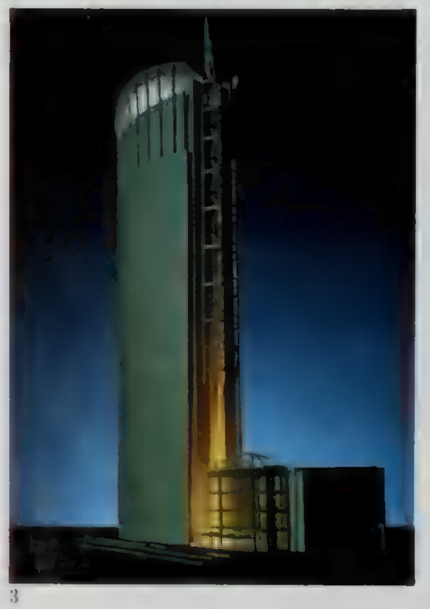
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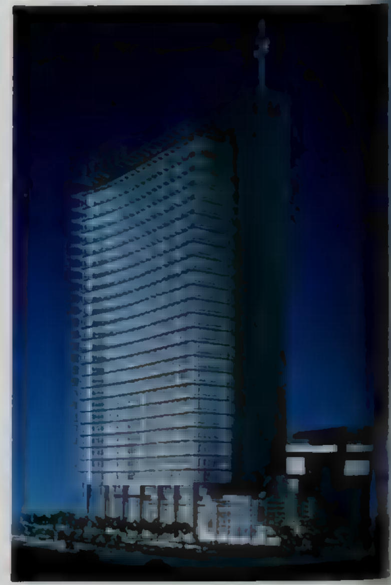
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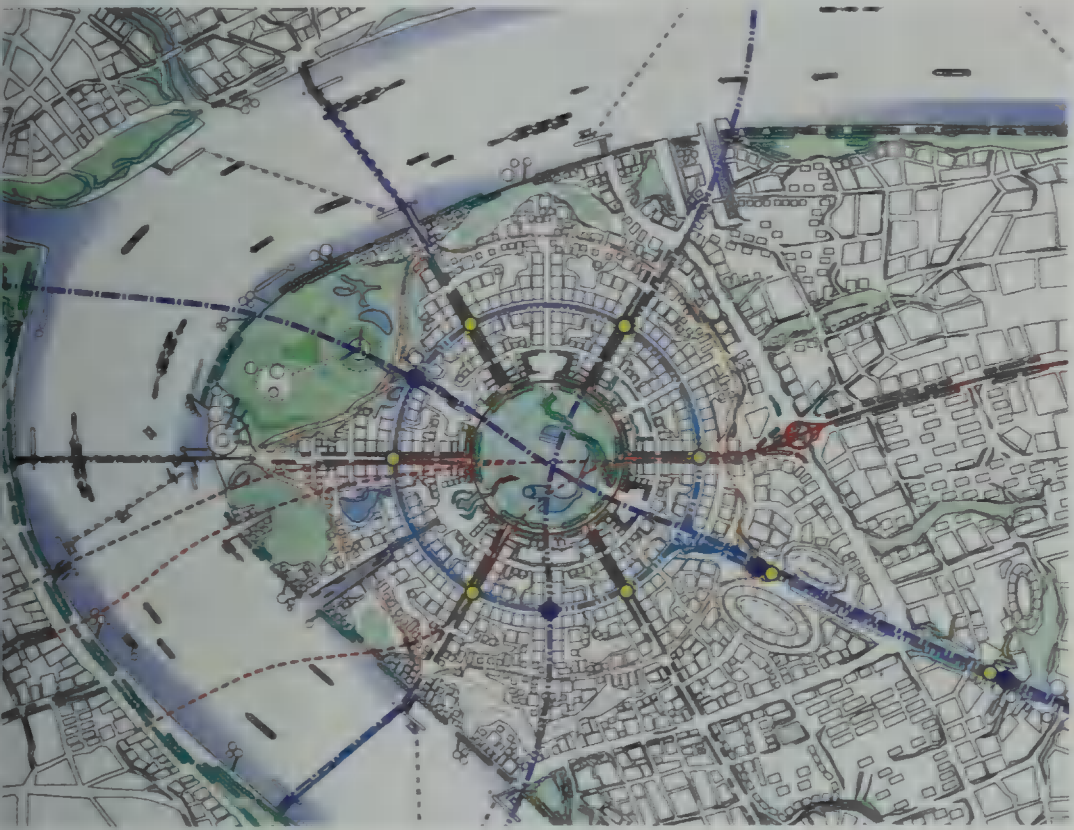
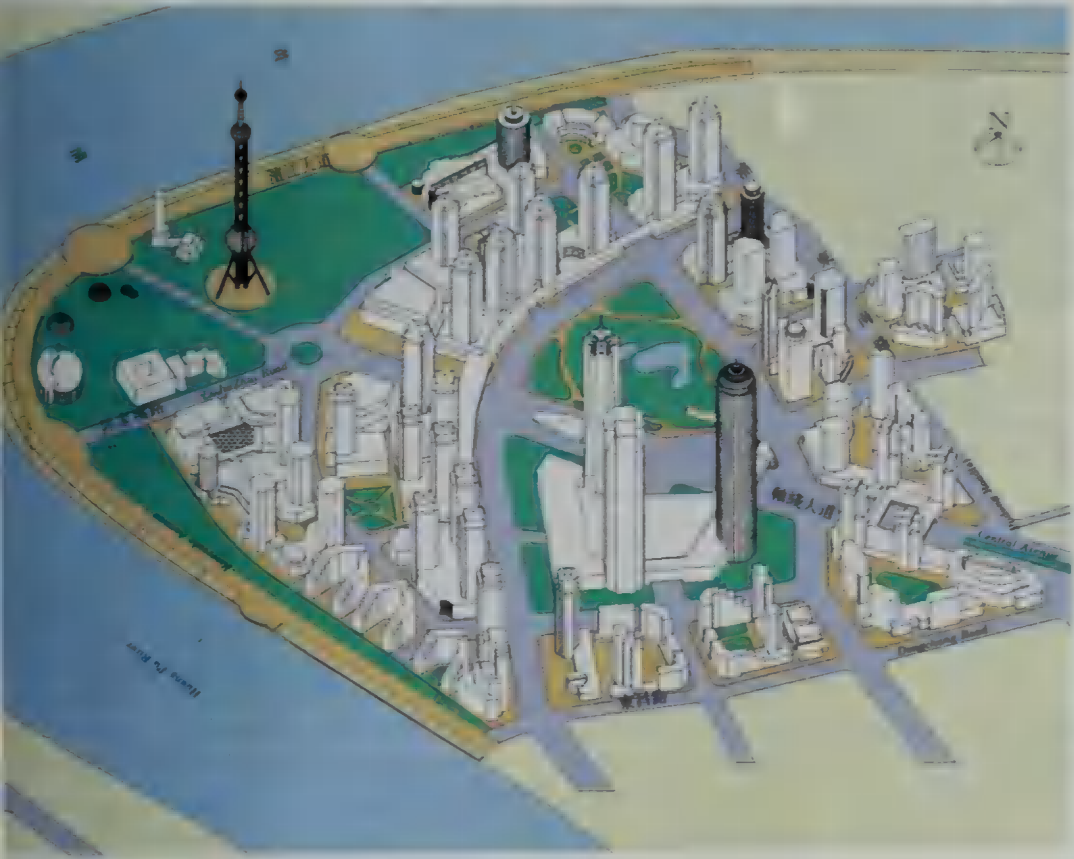
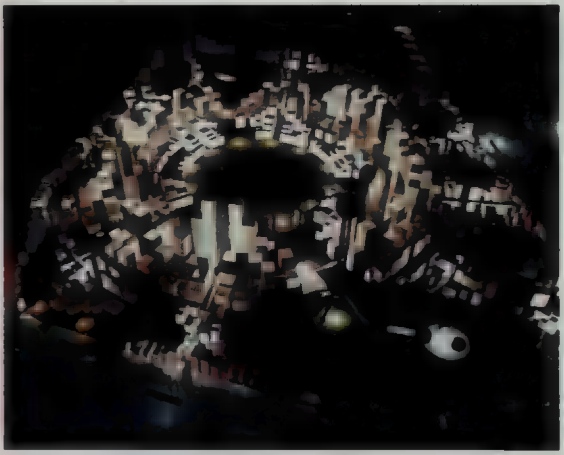
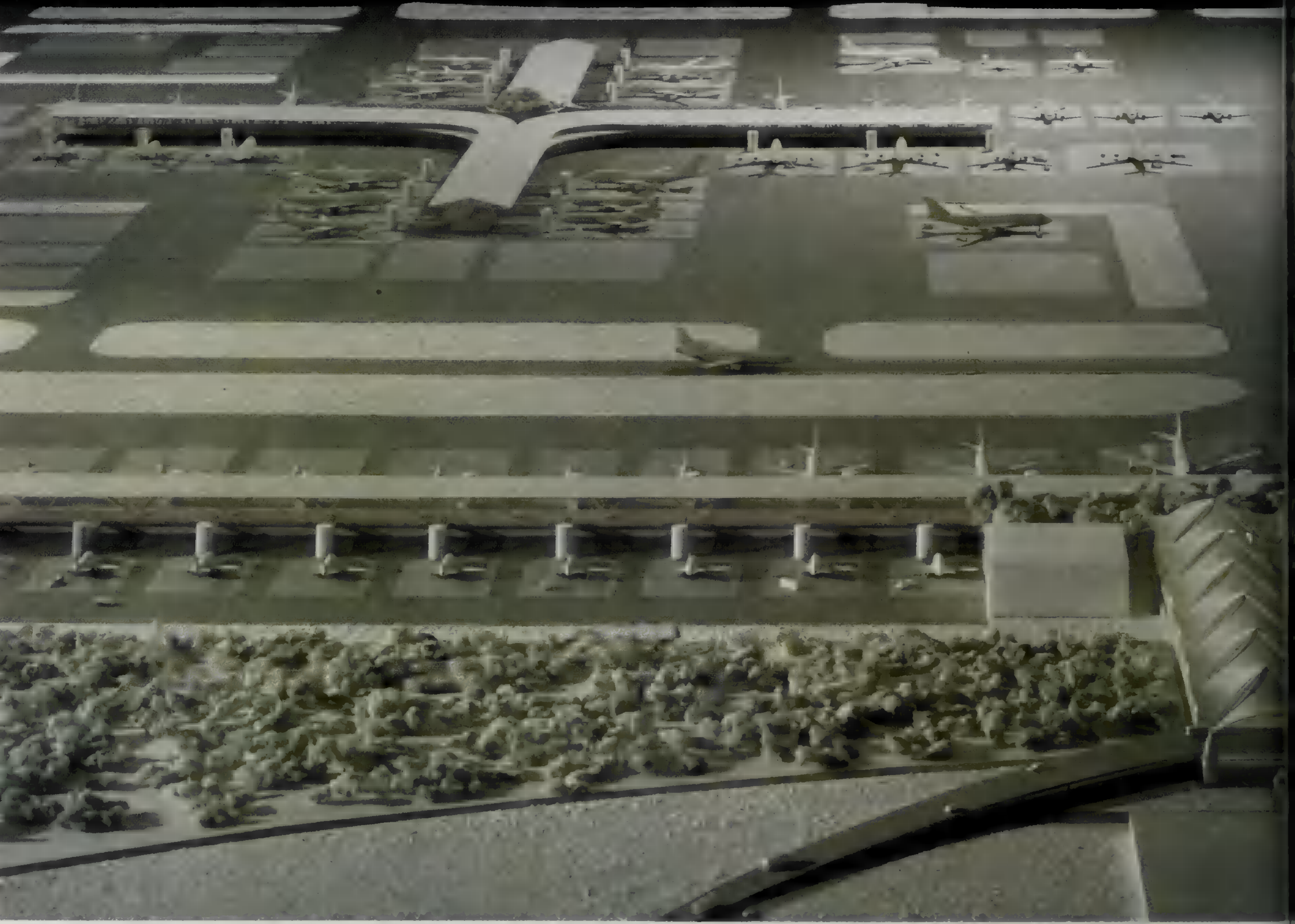




Plans for the Lujiazui Financial District in the Pudong New Area
Although some new towers are being built in older parts of town, the largest concentration of new development is happening in Pudong, across the Huangpu River from the Bund and the city's traditional commercial core. To help plan the new area, the city of Shanghai hired four foreign architects (Richard Rogers, Dominique Perrault, Massimiliano Fuksas, and Toyo Ito) to prepare schemes for the Lujiazui portion of Pudong. In the end, the city created a master plan for Lujiazui that incorporates ideas from the foreign architects and from four local design institutes (left bottom). This plan includes a riverfront park and a central green area that are also shown in the Rogers plan (left top and photo, below). The bold geometry of the Rogers plan, though, has been lost and many of the connections across the river and to other parts of Pudong haven't materialized. A tunnel under the river is now built and emerges on-grade as a highway slicing through the center of Lujiazui.



A Forest Runs Through It



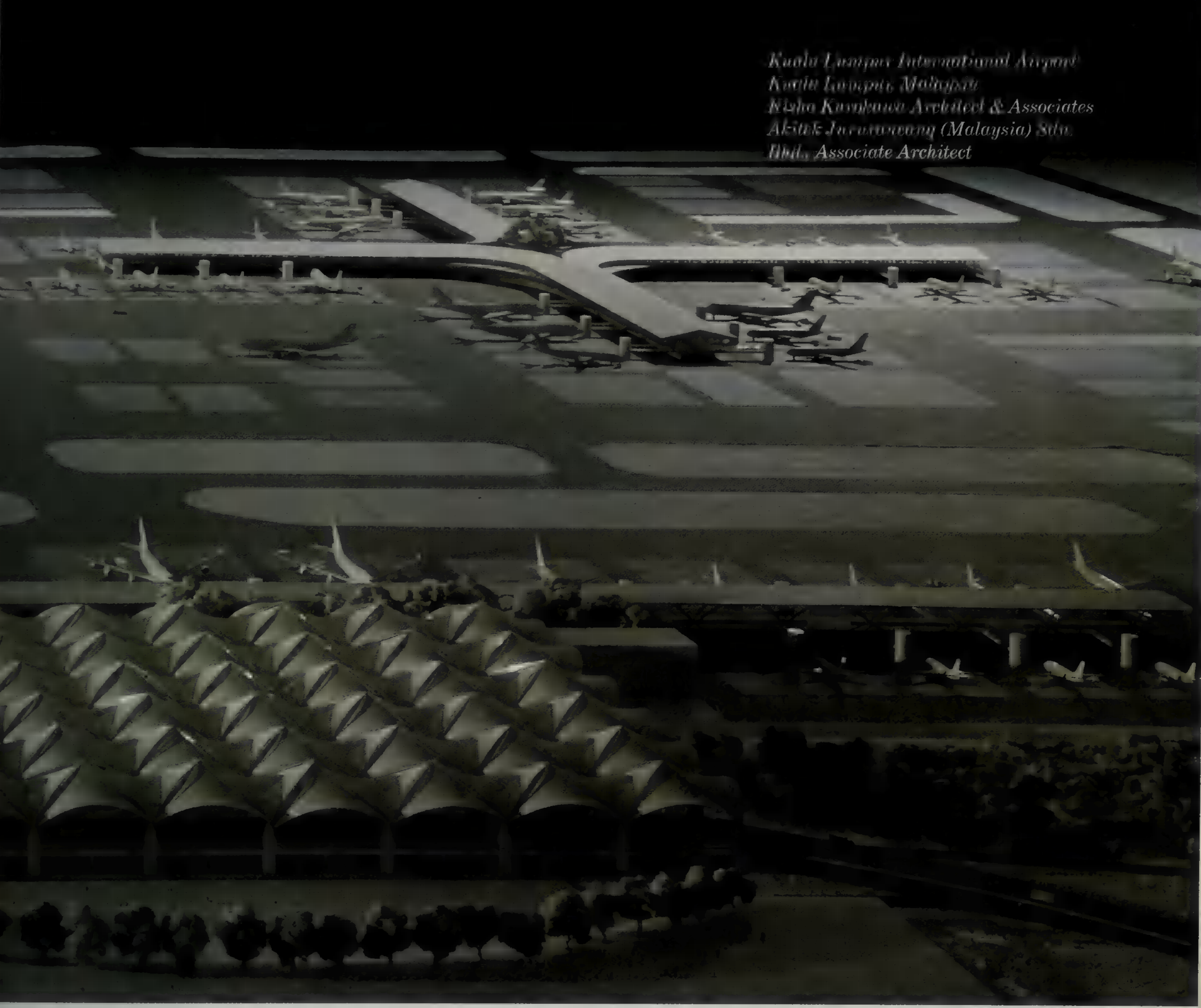
When Malaysia's Prime Minister Datuk Seri Mahathir Mohamad met with Kisho Kurokawa to brainstorm about Kuala Lumpur's new airport, he had one thing on his mind: wood. Though hardly the stuff of high-tech aeronautics, the material is an apt image for Malaysia, one of the world's largest timber exporters. Unfazed by this odd coupling, Kurokawa viewed it as a springboard for his symbiosis theory, which advocates marrying disparate architectural ideas through abstraction and juxtaposition. To that end, he proposed placing the new facility next to a manmade rain forest, enabling travelers to appreciate native flora and world-class technology at the same time.

Kurokawa's initial assignment is to lead the design consortium for the airport's first main terminal, which is just one component of what will be a vast complex. More mini-city than transportation nexus, the new airport will occupy a 38.6 square-mile (100-sq-km) site 31 miles (50 km) south of the city center and will accommodate two main terminals, four satellite terminals, five 13,200-foot (4,000-m)-long runways, hotels, and other support facilities, not to mention the new 58-square-mile (150-sq-km) rain forest buffering the airport from the surrounding area. "For me, it's an almost unbelievable situation," says Kurokawa, who, after winning the nominated competition for c main terminal, was commissioned to devise urban-design guidelines for the entire development, as well as conceptual schemes for its myriad pieces. (The city's existing airport couldn't be expanded due to its limited site and will be turned over to the Malaysian air force.

While the entire project will not be finished until 2020, the first pha will be completed in 1998 and will include Kurokawa's main termina The building contains five floors of arrival and departure gates, bag gage handling, and passport control, and will service domestic and international passengers. A union of indigenous culture and Modernism's abstract forms, the 1,345,500-square-foot (125,000 sq-m) building is roofed by a series of hyperbolic paraboloid shells that hover above the nearly flat site like a cluster of Islamic domes.

Composed of stainless-steel panels, the roof will be fabricated on-sit Spanning 126 feet (38.4 m), each soaring, curved shell terminates gracefully into four points perched on the tips of beefy concrete cones, one of Kurokawa's signature forms. In the top-level departur area, where partitions are kept to a minimum, the loftiness is intens

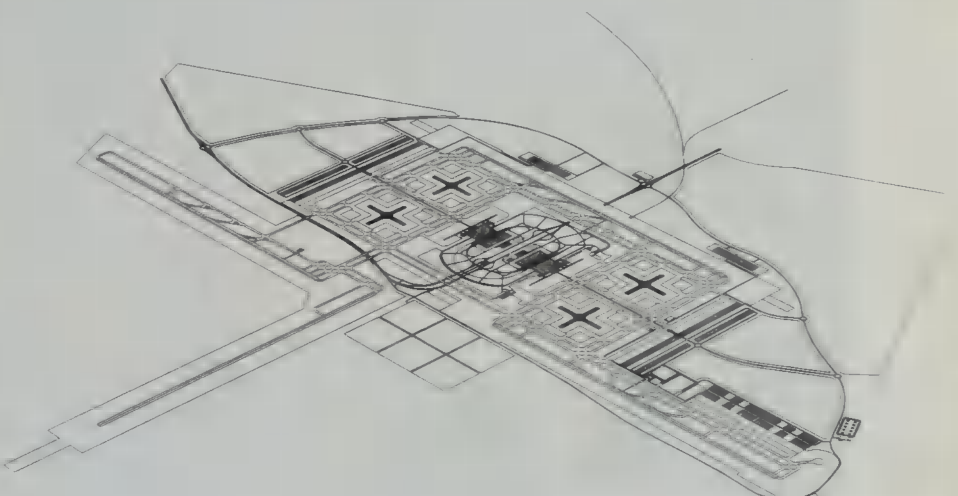
Kuala Lumpur International Airport
Kuala Lumpur, Malaysia
Kisho Kurokawa Architect & Associates
Akitek Jururancang (Malaysia) Sdn. Bhd., Associate Architect

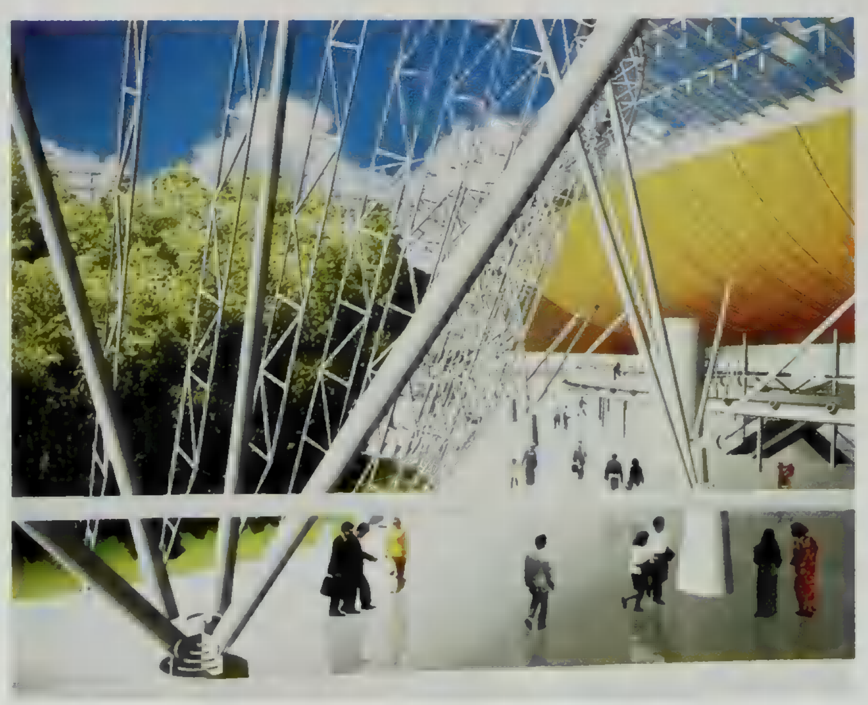


by a generous use of glass. Thanks to this transparent wrapper, okawa was able to forge a direct visual link between rain forest terminal—components that are physically separate except for rtyard gardens at the crux of each satellite terminal. And taking antage of the roof's unique geometry, the architect and his associ- clad the entire ceiling surface with strips of local wood to bolically bring the jungle inside.

aysia's tropical climate will enable the new forest, which will sist of some 50 types of local trees, to mature in just 15 years. In part of the world, nature is a force to be reckoned with. To coun- ct the strong sun and torrential rains, roof shells jut beyond the ding perimeter, forming deep eaves. And because the curtain wall stalled at a 15-degree angle, sunlight reflection is increased and penetration reduced. Glazed slots between roof panels, though, let aylight, decreasing the need for other sources of lighting.

okawa is busy in Malaysia these days—planning a new train ion in downtown Kuala Lumpur and envisioning connections from airport to a new city and container port. *Naomi R. Pollock*





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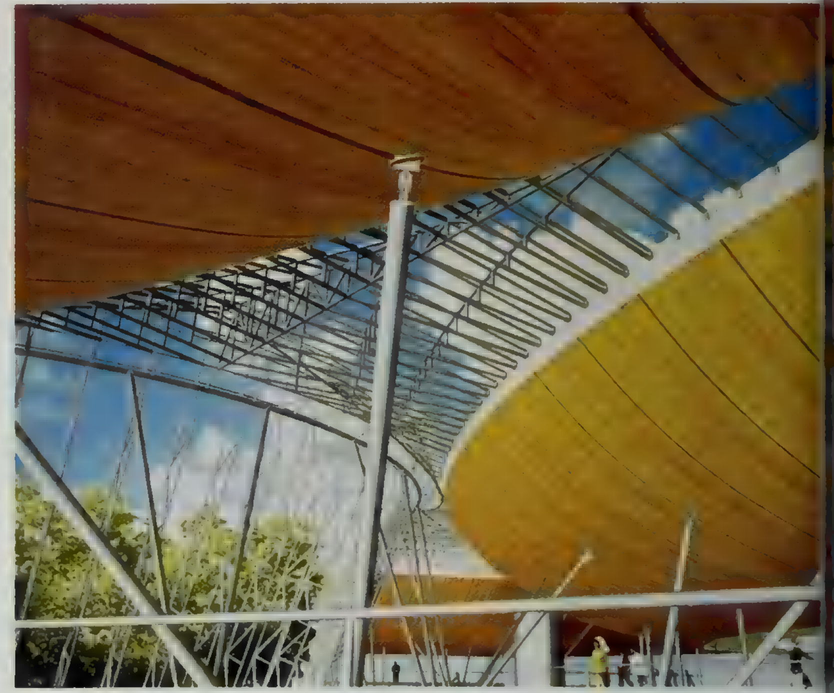
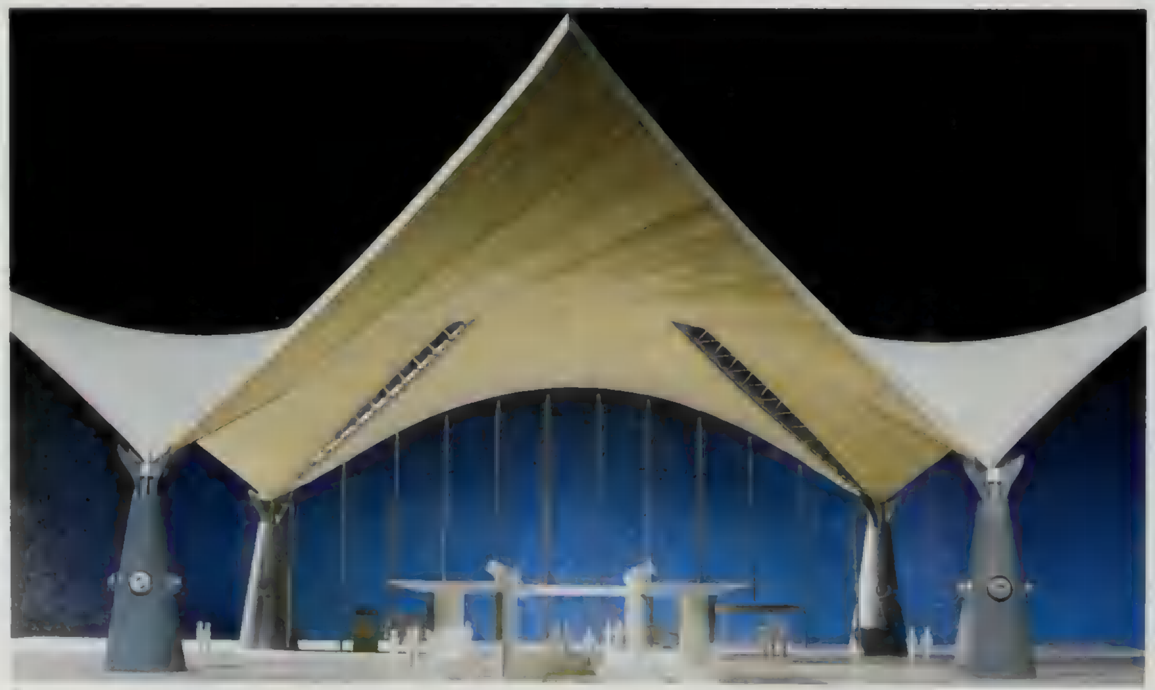


2

The giant project will eventually include twin main terminal buildings and four satellite terminals (site drawing, previous pages). The first phase includes one main terminal, two runways, and one satellite. Model photo (previous pages) shows a main terminal with two satellites. The main terminal will be five floors plus a basement, while the terminals will be three stories plus basements. The entire complex is scheduled to be completed by 2020, Malaysia's self-imposed deadline for becoming a fully developed nation. Using wood as a major design theme, Kurokawa and his associated architects surfaced the
main terminal's ceiling with
strips of local wood and opene
views to a new rain forest
planted specifically for the
airport (1). Made of stainless-steel panels that will be
fabricated on-site, the buildin
hyperbolic paraboloid shell ro
is evocative of Islamic domes.
Glazed slots between roof sections allow daylight to enter a
into the building's interior,
thereby reducing the need for
other sources of light (2). A th
story structure behind the ma
terminal houses departure an
arrival lounges (3). The most
impressive space in the termi
is the top-floor departure area
where the soaring roof can be



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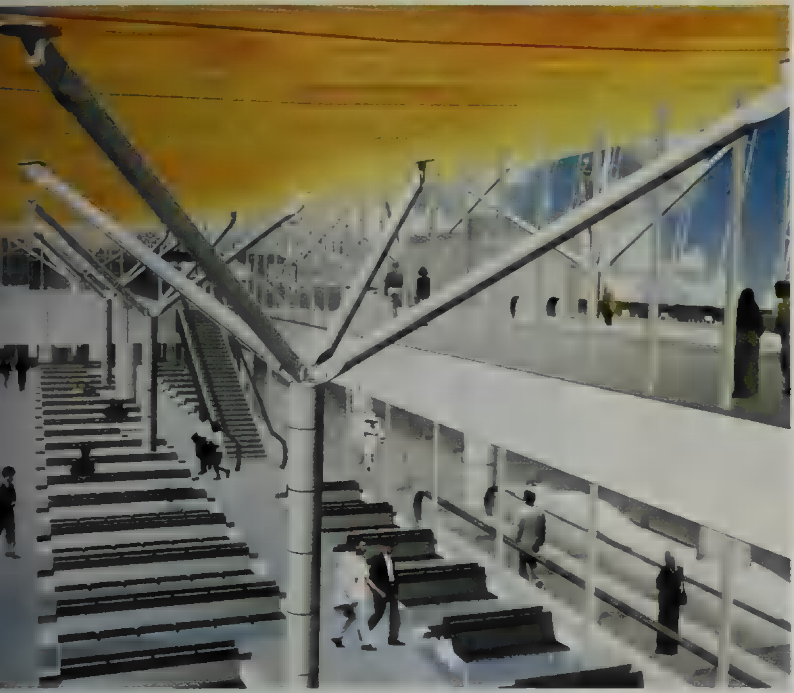
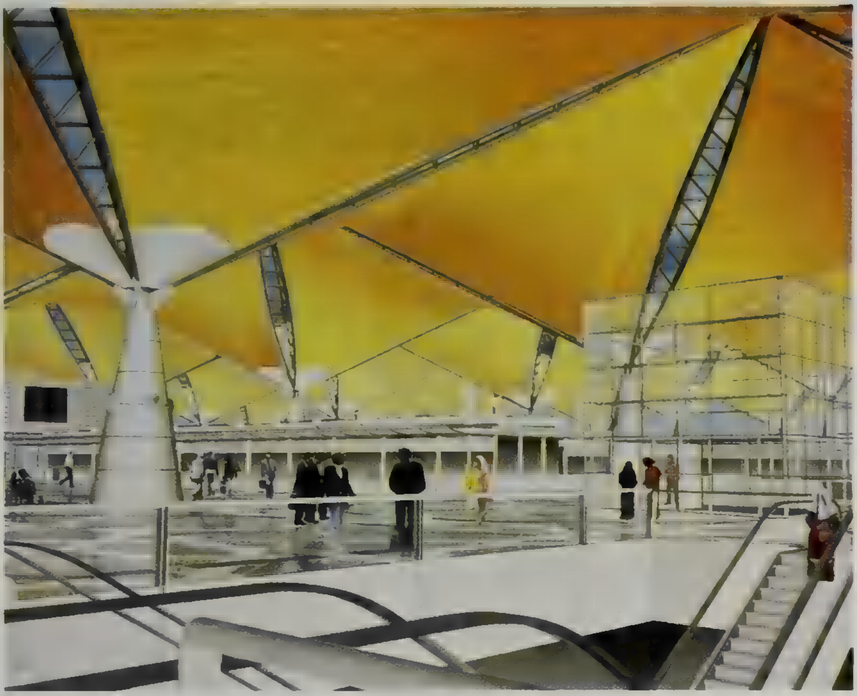
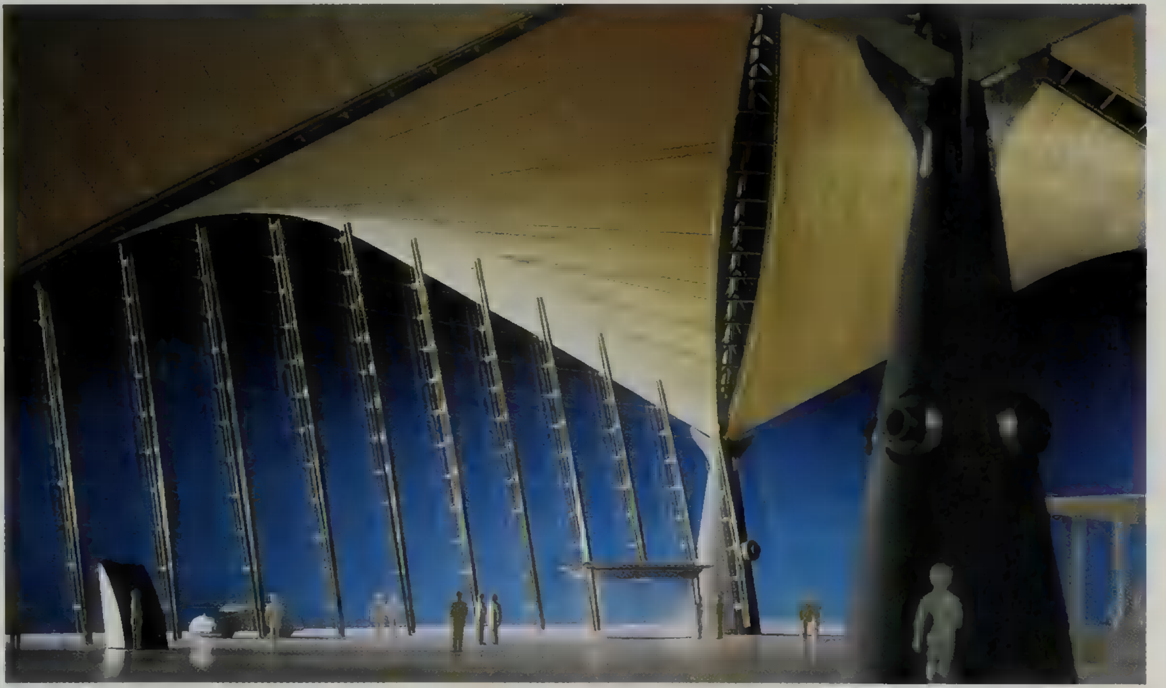




4

ired (4). Spanning 126 feet 4 m), each curved shell rests our bulging columns (5). se fat cones—a favorite okawa form—are more than visual devices. Measuring feet (3.8 m) in diameter at base, each column is a stack ollow pre-cast segments and bles as either a drainage duit from the roof or a duct high-velocity air piped in n basement mechanical ns (6 and 7). Curtain wall in terminal slopes at a 15-ree angle to reflect sunlight reduce its penetration into building (8). Vertical bow sses help support the large anses of curtain wall.

Credits
Kuala Lumpur International Airport Terminal Complex Kuala Lumpur, Malaysia
Architect: *Kisho Kurokawa Architect & Associates*
Associate Architect: *Akitek Jururancang (Malaysia) Sdn. Bhd.*
Engineers: *Ranhill Bersekutu Sdn. Bhd. (mechanical); Sepakat Seita Perunding Sdn. Bhd. (structural)*
Consultant: *Pacific Consultants International (airport)*



8

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CLEARLY SUPERIOR PERFORMA

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Clear Float Glass

The Sun Management Glass System® featuring Energy Advantage® Low-E Glass from LOF.

Now there's a glazing technology that can improve the performance of *any* solar control glass.

B.C. Hydro Edmonds Centre; Vancouver, B.C.: EverGreen Glass outboard and Energy Advantage Low-E Glass inboard; new construction project.

A *system* that gives architects and designers the freedom to create buildings with the aesthetic they want . . . and actually helps building owners reduce energy bills.

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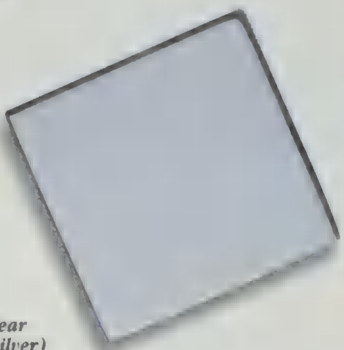
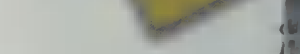


Clear (Silver) ECLIPSE® Reflective Glass

Grey Tinted Float Glass

Grey ECLIPSE Reflective Glass



Build in the optimal advantage.

Synergistic glazing technology that optimizes the thermal performance of insulating glass (I.G.) units, the LOF Sun Management Glass System unites an inboard lite of high-performance, pyrolytically coated Energy Advantage Low-E Glass with an outboard lit of one of LOF's advanced solar control glass products.

One of the most color-neut Low-E glass products available, Energy Advantage Low-E Glass

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OUTSTANDING SOLAR CONTROL.

s I.G.s improved thermal ormance – but no color shift to outboard lite.

The result is an I.G. unit decreases both heating and ling costs.

Enhanced energy efficiency… anytime, anywhere.

Originally created to reduce winter heat loss, Low-E glass has a proven track record in cooler, northern climates. Less recognized, however, is how it inhibits solar radiant heat transfer into building interiors – it keeps buildings cooler in summer.

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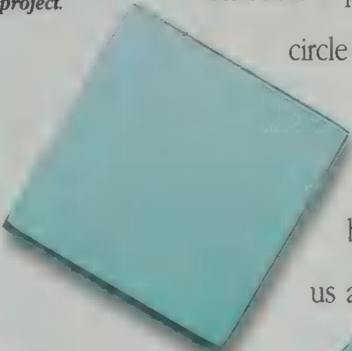
And that can mean substantial energy savings over the lifetime of the building – whether it's new construction or retrofit, and no matter where it's located.

Hotel du Pont; Wilmington, DE: Clear Float Glass outboard and Energy Advantage Low-E Glass inboard; renovation project.

See for yourself, then decide.

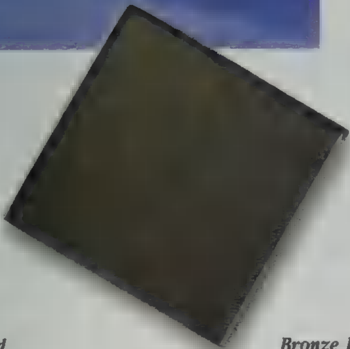
Now experience the Sun Management Glass System for yourself. Take a look at our new glass sample portfolio. For information on how to schedule a presentation, circle the reader service number below or call us at 419-247-4721.



Blue-Green Tinted Float Glass

EverGreen™ High-Performance Tinted Float Glass

Blue-Green ECLIPSE Reflective Glass



Bronze ECLIPSE Reflective Glass

Bronze Tinted Float Glass

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A member of the Pilkington Group
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Actual glass colors may vary from photo. Please [illegible] glass samples from LOF before making final color selection

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Manufacturers' Spotlight

Auton, makers of motorized systems since 1955, proudly announces the acceptance of its Pop-Up TV lifts in luxury hotels around the world. These remote-controlled lifts glide smoothly on 4 racks and pinions,eliminating wobble found in old-style scissor lifts. From fine homes and offices to luxury hotels world-wide, Auton is the lift professionals rely upon. For more information contact your architect, interior designer, fine furniture maker or custom AV installer. For free literature contact the **AUTON COMPANY**
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Ask for Mr. Archer · FAX (805) 295-5638
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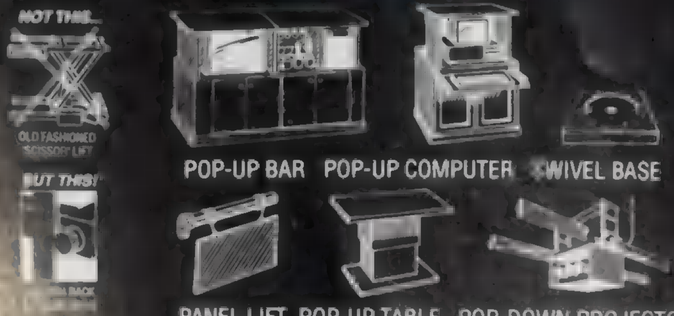

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Look for Auton in Sweet's 11457/AUT

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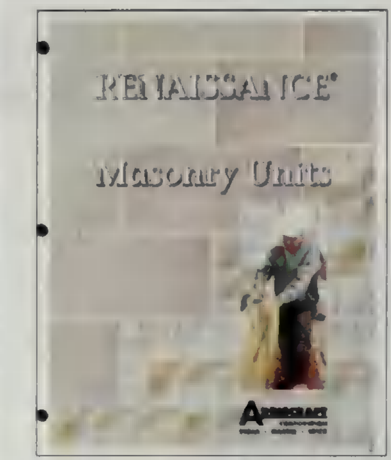
Masonry Units



Renaissance® Masonry Units are high density, severe weathering, calcium silicate, structural masonry units. They are produced by a unique process of Arriscraft Corp.'s own development. Renaissance® Masonry Units are produced for architectural applications, which include structural masonry components &vertical thin wall exterior or interior masonry skin. Available to order in White, Taupe, Grey, Rust, Buff, Paprika, Sage, Blue Grass & Olive. Custom colors are available to suit architectural selection. Various textures available including smooth face, hand chiselled & press hammered. Arriscraft Corp., Box 3190, 875 Speedville Rd., Cambridge, Ont. N3H4S8. For additional information. Tel 519-653-3275.

Arriscraft Corporation

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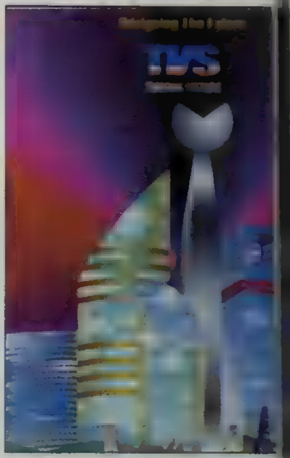
Automated Vacu Transport Syster



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- Perfect for large hosp and similar buildings t serve thousands of pe
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Transvac System, Inc

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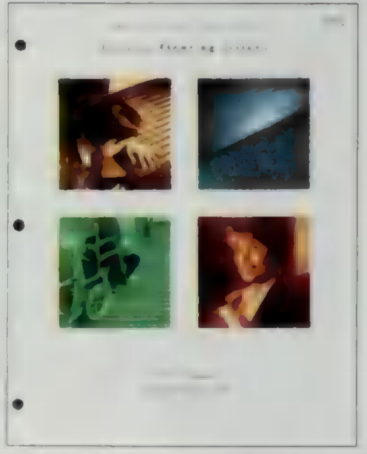
Entrance Flooring

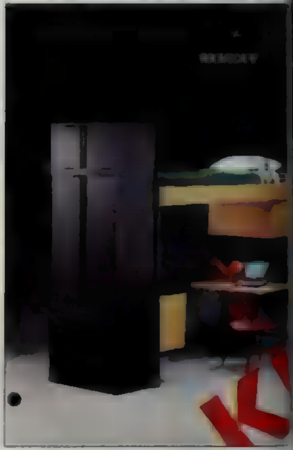


GrateDesign™ aluminum grates, MatDesign™ aluminum & low density polyethylene (LDPE) hinge mats, & EleGril™ stainless steel grates from Arden Architectural Specialties, Inc. offer maximum design flexibility & functionality for entrance flooring systems. New additions to this line include our exclusive UltraSorb™FR, a premium fire-resistant floor covering that removes three times the dirt & moisture from feet as carpet.

Arden Architectural Specialties

Circle 38 on inquiry card

Furniture Flexibility



RoomScape™ Allows F Student Resident Room Furr Flexibility.

RoomScape is a flexible furr management system allows each residence hall to be configured to fit indiv needs & lifestyles. Compo can be easily installe rearranged without the u tools. In its disassembled s RoomScape is a com storage unit. For more info tion, contact KI, PO Box 8 Green Bay, WI 54308-8 (800) 424-2432.

K I

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anufacturers' Spotlight

Hoover Treated Wood Products

ew video from the U.S.'s irgest producer of fire retarant treated wood shows ow treated wood is roduced and tested, and escribes Hoover's complete ne of treated wood products icluding **PYRO-GUARD** inteor type fire retardant treated imber and plywood, **EXTEIOR FIRE-X** exterior type fire etardant treated lumber and lywood, and **CCA KDAT** reservative treated lumber nd plywood that's kiln dried fter treatment.

Hoover Treated Wood Products, Inc.

ircle 23 on Inquiry card

Sterling Custom Enclosures CAD Library

Sterling offers a CAD Library to aid in the design and application of custom finned tube enclosures. This extensive Windows compatible library shows the custom capabilities of Sterling in dealing with unique applications and design constraints. Drawings can be incorporated into project specifications or used to develop project specific submittals.

Mestek-Sterling

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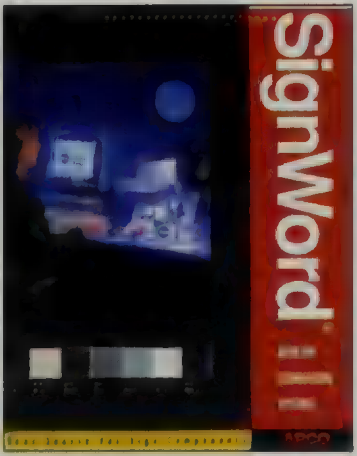
Signmaking Software



Create professional-looking signs using APCO's SignWord® signmaking software and your IBM PC® or Macintosh® computer. System allows you to respond to changes at a fraction of the cost of factory lettering. Pre-established layouts make it simple for you to enter your desired messages and/or symbols. Sign holders and paper inserts are available in a variety of sizes, shapes, and colors.

APCO

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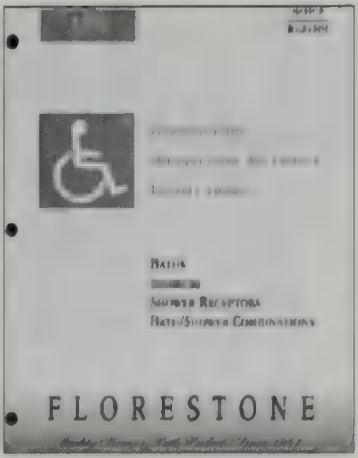
Barrier-Free Products Catalog



New Florestone brochure describes ADA compliant, barrier-free, wheelchair accessible and institutional showers, shower/bath combinations, and shower receptors. Drawings and listing of Building Codes and Testing Standards, as well as a section on the codes is included. Call (800) 446-8827.

Florestone

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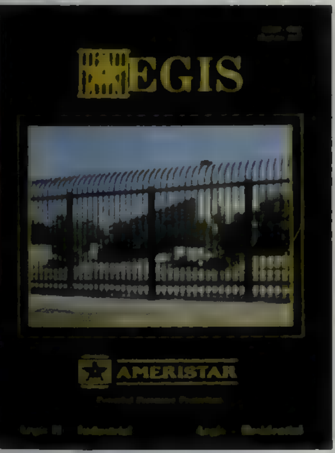
EGIS™



egis ornamental fence systems feature rong Forerunner™ rails, internal etaining rods, & specially designed anel brackets. Aegis II industrial ornaiental fence offers the strongest security rnamental fence available in todays arket. Aegis holds the distinction of aving its fence systems specified by iore architects & builders than any ther in the market. Both industrial & resiential brochures are available upon equest & include data on structure, esign, & options available. Panel esign is a component system for easy iipping. For additional information & a ee 8-page brochure, call (800) 321-724. P.O. Box 581000, Tulsa, OK 74158-[illegible] Fax# (918) 835-0899

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TOTAL DOOR® SYSTEMS by OPENINGS®

The TOTAL DOOR® SYSTEM is an architect-designed integrated door assembly. It includes prefinished door panels and all hardware. Fire rated pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. OPENINGS, 40 West Howard, Pontiac, MI 48342, 1-800-852-6660.

OPENINGS.

Circle 50 on Inquiry card

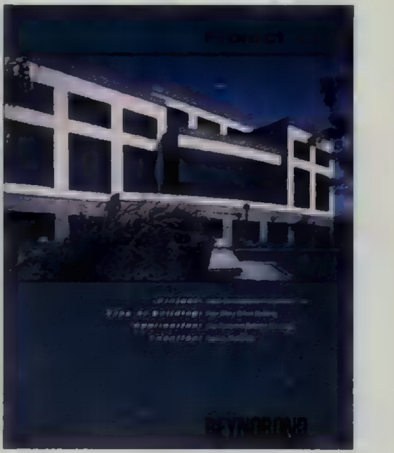
Fence Systems

This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design and enhance the appearance and security of any property it surrounds, this fence system is virtually unclimbable, rugged, maintenance-free and easy to install. OMEGA FENCE SYSTEMS, Laval, Quebec. 1-800-836-6342.

Omega Fence Systems

Circle 51 on Inquiry card

REYNOBOND Project Report



Fire resistant REYNOBOND® Aluminum Composite Material is featured in a project report of the State Compensation Insurance Fund office building in Fresno, CA. Containing details and comments by the design and contracting principals, the report is available with a complete REYNOBOND® Architectural Brochure and standard color chart. Contact Reynolds Metal Co.; Construction Products Div.; P.O. Box 27003; Richmond, VA 23261. Telephone (804) 281-3629; FAX (804) 281-3602.

Reynolds Metals Co.

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Manufacturers' Spotlight

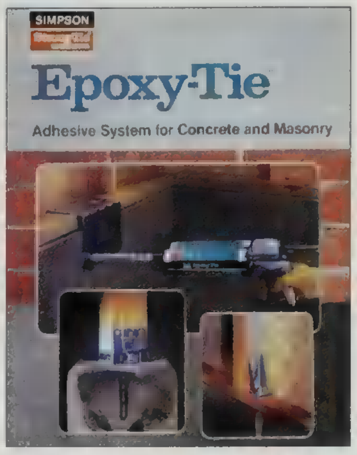
The Discrete Access & Egress Solution

Security requirements, space constraints and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The ladder's discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. Jomy Safety Ladder Co., 1728 18th St., Ste. 201, Boulder, CO 80302. Phone 800-255-2591.

Jomy Safety Ladder

Circle 53 on Inquiry card

Anchoring bolts easier with EPOXY-TIE ™



Low-cost epoxy system for retrofits in concrete or masonry provides stronger anchoring than can be achieved with mechanical anchors. Epoxy-Tie™ bonds with surrounding concrete; anchor is less prone to side-burst during close-interval installation. Higher resistance to moisture and vibration than mechanical anchors. Full information in brochure **F-ET**.

Simpson Strong-Tie® Co., Inc.

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Stone Panels

Ultra-Lite natural granites, marbles, limestones & slates. Offering natural stones with 80% less weight. Reinforced for high impact & flexural strength. Especially well suited for renovation & reclad. Saves on back-up framing & structure requirements. Reduce installing labor costs. Used on building exteriors throughout the world. Also elevator cab & lobby cladding, ceilings & locations requiring real stone but less weight.

Stone Panels, Inc.

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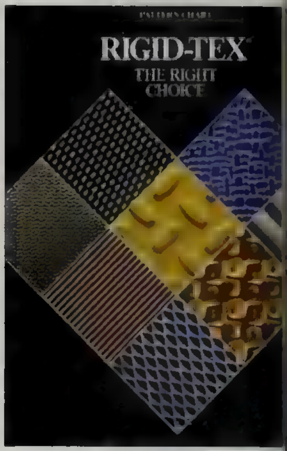

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New Fireplace Tested as a Wall Furnace

Heat-N-Glo Fireplace Products has taken its direct-vent technology and incorporated it into a new high performance fireplace. Model 6000 Supreme is a high efficiency fireplace (thermal efficiency up to 74%) and has a AFUE (Annual Fuel Utilization Efficiency) rating of 63%. Also, the 6000 Supreme is standard with a variable regulator to adjust the flame and BTU input with the turn of a dial. Heat-N-Glo, 6665 West Hwy 13, Savage, MN 55378, 1-800-669-HEAT.

Heat-N-Glo

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Bicycle Lockers

CycLockers are all-steel modular bicycle storage cabinets that accommodate two bicycles per unit. Modules can be used individually or in linked groups sharing common walls. Choose from over 170 coating colors, two-toned color schemes, or stainless steel versions. For new brochure call 1-800/547-1940 ; request extension 530. Columbia Cascade Co. Portland, Oregon.

Columbia Cascade

Circle 58 on Inquiry card

Accessible Lavatory Insulation

A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog.

Plumberex

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OSB: Performance by Des

Get the latest word
oriented strand board
engineered structural p
Range of panel size
thickness means fe
design constraints anc
waste. Applicati
include: wall sheathing,
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Plus, OSB is approved b
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codes. Call the Struc
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9090 or fax (416) 730-90

Structural Board Assn.

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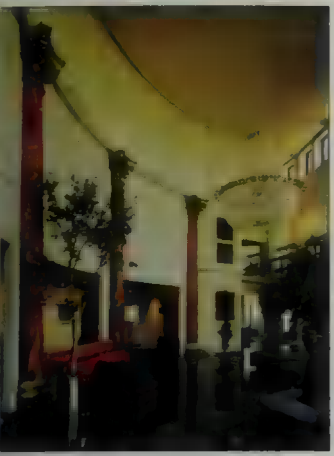
Chadsworth Columns



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hadsworth Columns

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Applied Design by Stuart Dean

When a new architectural design technique is impressive enough to be used by firms like Pei, Cobb, Freed & Partners and Frank Williams and Associates, at only half the price of etching, it catches everyone's attention. Stuart-Dean's Applied Design is a versatile method for decorating and refinishing elevator doors, metal, wood or glass. It can often be applied on site, overnight. You can choose stock patterns or custom artwork. 1-800-322-3180.

Stuart Dean

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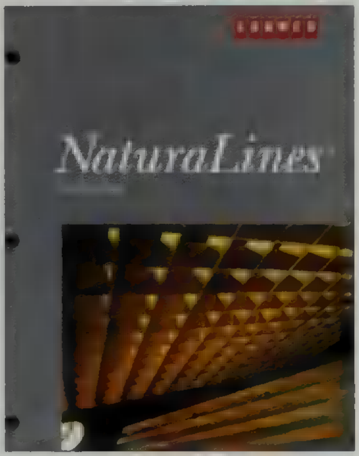
Conwed Respond Ultimate I Panel



Conwed Respond Ultimate I is an acoustical wall and ceiling panel designed for use in areas requiring abuse resistance and acoustical absorption. It utilizes a glass fiber core faced with an acoustically transparent open perforated rigid vinyl sheet and wrapped with fabric or vinyl. Ideal for use in: gymnasiums, theatres, and multi-purpose rooms. Conwed, 1205 Worden Ave. E., Ladysmith, WI 54848, 800-932-2383, Fax: 800-833-4798.

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Door and Wall Protection Systems

IPC - Institutional Products Corporation is a manufacturer of high impact door, corner and wall protection systems. Our catalog illustrates a product line that includes Handrails, Corner Guards, Wall Guards, Kickplates and Wallcovering. Our durable vinyl products, offered in 50 designer colors, provide an attractive way to protect interior finishes from damage.

Institutional Prods. Corp.

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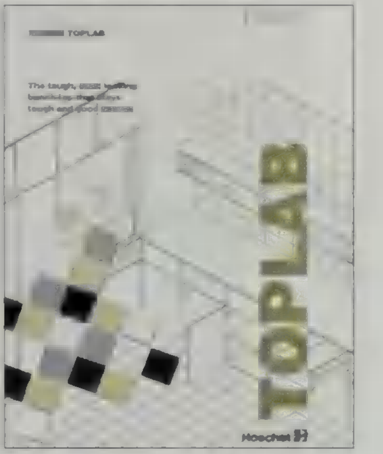
Trespa® Toplab® Lab Panel



Trespa® Toplab® grade resists strong acids, e.g. 96% Sulfuric, and other chemicals. Toplab is durable, easy-to-clean, and available in colors. It will not rot, rust, delaminate, or support bacteria. Toplab is available in sizes up to 1" thick and 12' in length; it remains flat for excellent butt joints and is 25% lighter than epoxy. 1-800-4-TRESPA.

Hoechst Celanese Corp.

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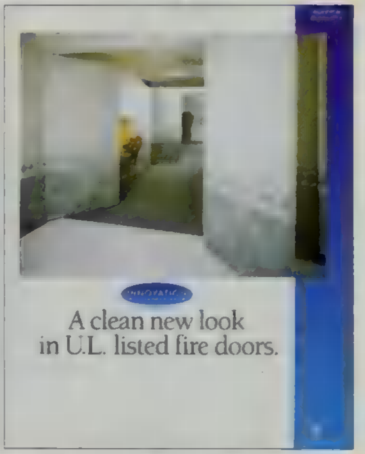
"Innovation" Doors



WonDoor Corporation, the world's leading manufacturer of accordion-type fire doors, introduces a new line of UL approved swing-type fire doors with recessed hardware. Called "Innovation", the new doors feature a totally clean look, completely eliminating unsightly hinge knuckles, vertical rod lines, floor bolts, and protruding fire exit hardware used on most fire doors.

WonDoor Corp.

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Manufacturers' Spotlight

Automatic Sliding Glass Entrance System

Horton Automatics Elegant™ automatic sliding glass entrance system meets the demands of modern architecture yet conforms to building codes and energy conservation requirements. Automated by the state-of-the-art, micro processor driven, Series 2001 operator. Glass panels slide quietly on a concealed track. For emergency egress, a breakout feature that allows panels to swing out is also available. Call 1-800-531-3111.

Horton Automatics, Ltd.

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Hunter Douglas Ceiling Gets High Marks

The Hunter Douglas Open Cell Metal Ceiling System was a key component in the design of Rockwell H.S., an award-winning project in Dallas. The system allowed the architect to incorporate a multi-level ceiling with vibrant colors as a major design element. Hunter Douglas metal ceilings contain no V.O.C.'s and are ideal for IAQ sensitive applications. **Call 800-366-4327 for more information.**

Hunter Douglas ®

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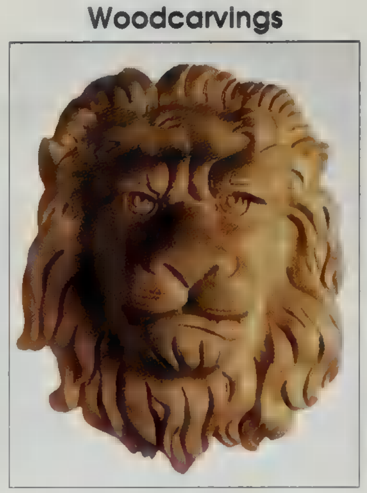
Architectural Woodcarvings



Comprehensive selection of Architectural elements carved in solid woods. Color Product Catalog shows complete line of capitals, corbels, moldings, onlays, panels, mantel fascias and bases available in Maple and Oak. Design Portfolio illustrates applications. Catalog set-$20 (refundable with order). Visa and MC welcome. Complimentary brochures. Manufacturing and Showroom: 16506 Avalon Blvd., Carson, CA 90746. Ph. (310) 532-1400, Fax (310) 532-2042.

Raymond Enkeboll Designs

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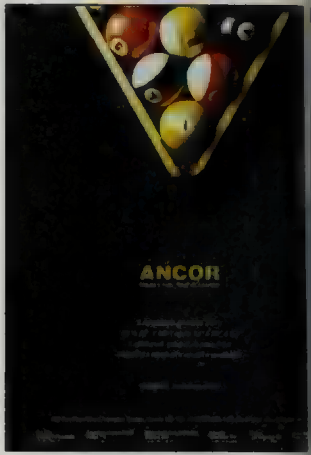
Ancor Granite Tile



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Mohawk Commercial Carpet

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energy Inc.

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Tuflex Rubber Products

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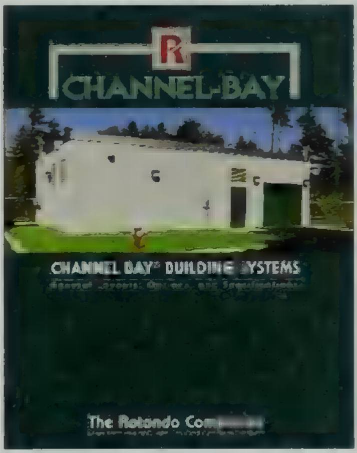

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Rinnai America

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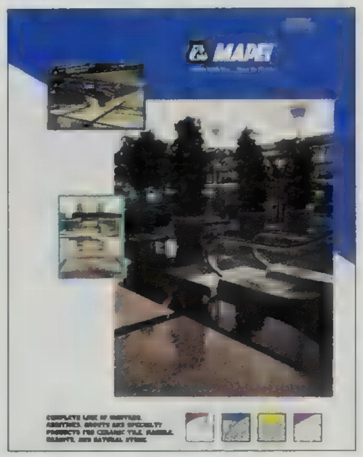

MAPEI offers a diverse product line for substrate preparation, tile/stone installations, carpet, wood, and resilient flooring applications, plus specialty products for building renovation and concrete repair. This 16-page tile/stone installation product catalog features product characteristics, specification compliances, technical installation drawings, reference charts, coverages, and packaging information. Please call 1-800-42-MAPEI.

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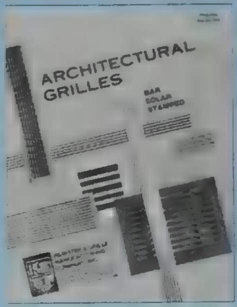

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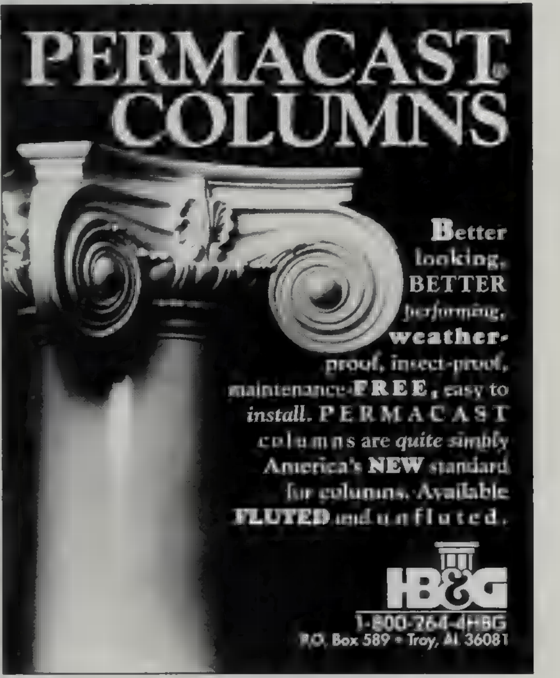

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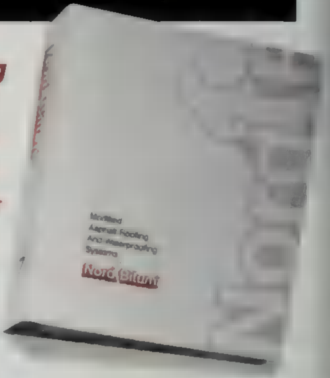

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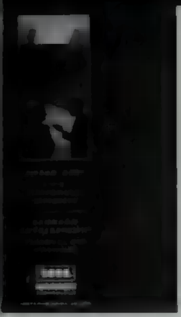

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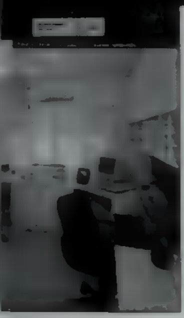

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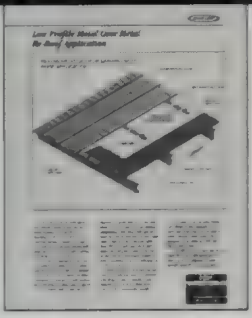
413. Exit devices

Part of a complete line of commercial and institutional door hardware, closers, and exits, American Device shows rim-, mortise-, and vertical-rod exit devices in an eight-page catalog. Fire and panic bars come in a selection of architectural finishes including solid brass and stainless steel; electrified control options described. The Dorma Group, Reamstown, Pa.

415. Limited-access elevator

A catalog explains how the 1400 Series elevator is an affordable way to overcome architectural barriers in churches, clubs, and other limited-access areas where permitted by code. Said to fit into the space of an average-size closet and to be adaptable to existing conditions; meets ANSI A17.1. Schumacher Elevator Co., Inc., Denver, Iowa.



417. Metal-roof reroof

Brochure explains how the new MR-24 standing-seam metal roof system goes "over the top" of existing through-fastened, rib-type metal roofs without expensive panel tear-off or new spanning members; gives slope to flat roofs. Retrofit roof clips will accommodate thermal movement in buildings up to 500-ft wide. Butler Roof Div., Kansas City, Mo. ■

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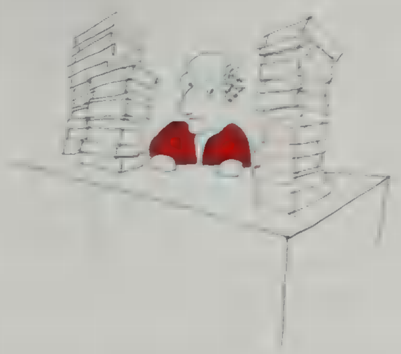

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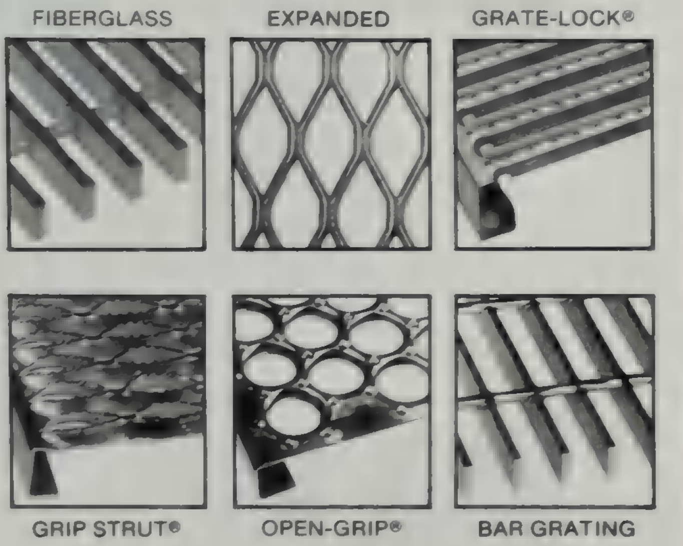

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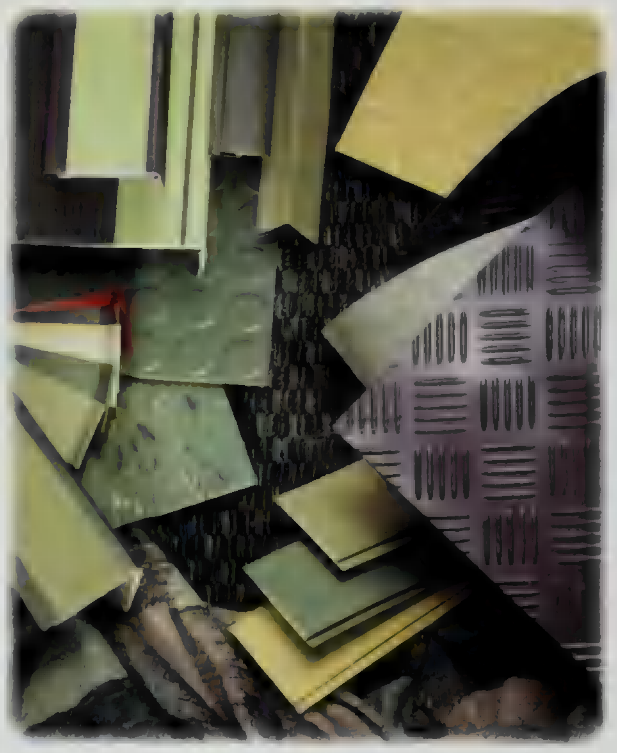

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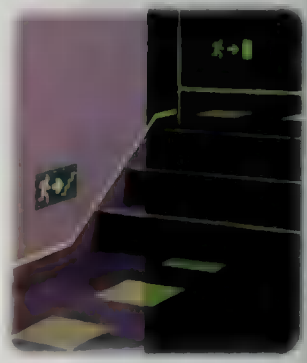

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✳ *1993 Canadian Facility Newsmaker Award Winner*
† *1994 Roscoe Design Award Winner*
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☐ *1994 IIDA/Contract Design Apex Award Winner*

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ERS *continued from page 4*
Pan Am fought and died in the deregu- of the '80s.

hreat to the profession from the engi- will lead, in time, to the demise of the ssion of architecture. I live in Buffalo, here is an inner-city group of homes, 50, that was designed by a professional eer. One plan, 50 units. An architect ut on that project, and a neighborhood rs from ugly housing. What is needed is lea of one plan, one designer, one house. dea of using one plan, as Levitt did, d be relegated to the ash heap of ry. Copyright the plan and make only ouse from it. Then retire the design. vill increase the need for architects, not n it.

petition is fine, but to have two or three ssions vying for the limited resources ded by the new building industry will lead to more exploitation of the new uates as they enter the field. I am not ist competition as it is present with the ber of architects and architectural firms are in practice today. I am against con- ors, interior designers, builders, and engineers trying to slice the pie even smaller for an already saturated field. If engineers design houses, then architects need to design bridges and dams and other works limited to the engineering field. It would allow the field to open up and provide a new avenue for all firms.

Richard Fitzpatrick
Architectural Designer
Buffalo, NY

Spiffy Light

How ironic to see Fordham University's Tower of Light celebrated in RECORD 's May issue. This spiffy structure graces its fashionable Manhattan location. Meanwhile, Fordham persists in building a very different sort of tower at its Bronx campus. This monstrously ugly giant antenna sheds contempt on the old neighborhood where Fordham got its start, and defiles the adjacent New York Botanical Gardens.

August Matzdorf
Professional Engineer
New York City

CALENDAR

House," with cash awards for first-, second-, and third-place winners. Judges include architects Kisho Kurokawa, Takefumi Aida, and Kazuhiro Ishii. Contact Shinkenchikusha Co., Ltd., 31-2, Yushima 2-chome, Bunkyo, Tokyo 113, Japan, for details.

- Masonry Design Awards Competition entries for architects in the Washington, D.C., area are due by July 28. Call 301/6552-0015 for further information.
- Submittals for the Professional Services achievement awards are due Aug. 4. Call PMSA at 704/521-8890 for entry rules.
- "Unbuilt Architecture" competition submissions are due Sept. 26. Entry fee is $50 for each submission. Call Boston Society of Architects, 617/951-1433 ext. 232, for details.
- Society of American Registered Architects invites architecture students to submit work done in conjunction with school or independently. Entrants must register by Oct. 6, and submit projects by Oct. 13. Call SARA at 708/932-4622 for details.
- Shikenchiku Residential Design Competition entries, which will be judged by Jean Nouvel, are due October 18. Contact Shikenchiku-sha Co., Ltd., 31-2 Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan.■

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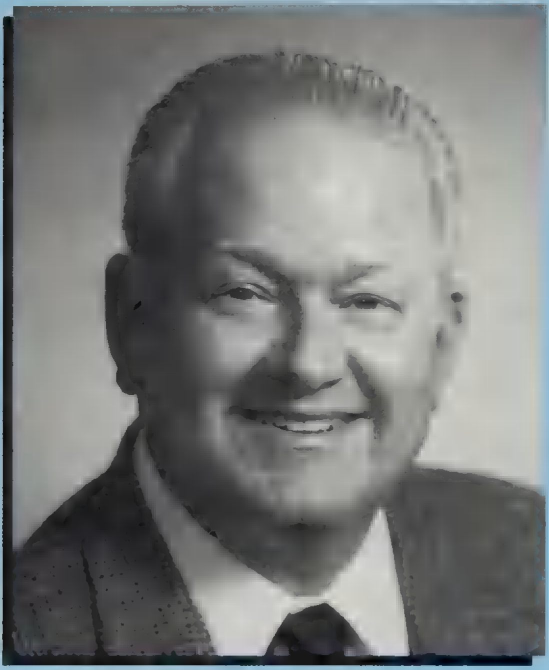
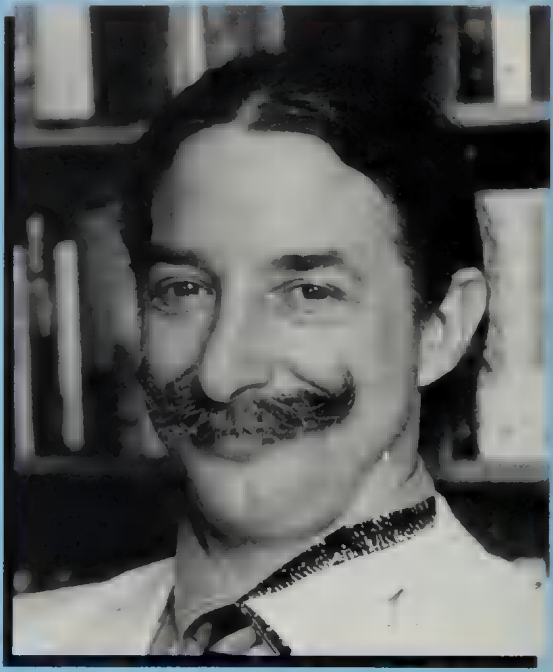

Leland R. Kaiser, Ph.D., Futurist and Visionary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Wars *continued from page 27*

tablishes a minimum level of com-
ze," he says. Neither doctors nor
ieys, he explains, are licensed by spe-
but they are subject to disciplinary
if they practice outside their area of
etence. Similarly, "engineers have the
and the obligation, judgment, and dis-
n to determine what their area of
etence is," says Schwartz. "If they go
d that, the state board should take dis-
ary action." Replies AIA president
er Widom, "They're claiming architec-
s the same as engineering, and it isn't . .
hey think the architecture profession is
to step back and say you can do what-
ou want, they're wrong. We will not
off. We believe you need architectural
ng to do architecture." Indeed, the com-
cies that NSPE feels are within
eers' purview are so fundamental to
ecture that architects may feel forced
llenge engineers, one by one, on the
of competence" issue (asking a struc-
engineer, for example, to show that he
knows other than structural building
), even if Justice should rule for NSPE.

"prime professional": pivotal?

the deregulatory mood of elected officials, however, NSPE's argument might find favor, while the distinctions architects regard as critical may look abstract, arcane, or merely issues of turf. Take the architect's claim that he or she alone is entitled to be a project's "prime professional"—coordinating the efforts of engineers and consultants as well as the work of his or her own firm. Architectural licensure assures the client that the architect has studied and trained to do these things. Architects argue that demonstrating competence in this area should be a condition of licensure; NSPE disagrees. Though there are "health, welfare, and safety" issues involved—the basic rationale for licensing—NSPE doesn't recognize the level of protection afforded the public as deserving of licensing protection. The certifying of prime-professional credentials is "for the public good," says Widom. "We set minimum standards, and they are not very high, by the way."

Though most would laugh at the notion that there's not enough competition in the provision of design services, the Justice Department might see the situation differently. It would be especially difficult for architects if the department finds that what architects regard as unique skills—the coherent planning of the building, the dignity or beauty or power of the design—doesn't warrant protection by licensure. Also, Justice might look askance at the many areas where architects and engineers make common cause, such as urging quality-based selection of consultants for government jobs. The profession has attracted unwanted antitrust attention in the past, and not fared well. Widom, for one, would prefer to concentrate on the "90 percent of issues" that architects and engineers share. *James S. Russell*

Further information

"Engineering Licensing Laws & The Design of Buildings," a discussion paper available from NSPE (1420 King Street, Alexandria, VA 22314-2794; 703/684-2800).

"Architecture/Engineering Overlap and the Prime Professional Issue: A Status Report," is a 1994 document available from the AIA (202/626-7300).

"Architecture As It Differs From Engineering," is a position paper available from the National Council of Architectural Registration Boards, NCARB Publications, 1735 New York Ave. N.W., Suite 700, Washington, D.C. 20006

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ects to identify the products specified.

s 64-69
ld Elementary School
erty+Dougherty Architects
roofing: Berridge Mfg. BUR: GS Roofing
cts. Windows: Service Aluminum. Glazing:
ndustries. Entrances: Vistawall. Locksets:
ge. Exits: Von Duprin. Closers: LCN. Class-
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go Metallic. Paints: Frazee. Carpeting: Lee's
ercial. Sconces: Pacific Lighting. Parabolics:
nia.

s 70-71
: School No. 51, New York City
n Samton Architects
veneer: Tri-State. Aluminum-framed
ws: EFCO Corp. Entrance: LMT. Corridor
g and ceilings: Armstrong World Industries.
d block: Trenwyth Industries (Astra Glaze).

s 72-75
on High School East
& Snyder Architects
nated timber: Trus-Joist. Tile: Dal-Tile.
ling-seam roofing: Berridge Mfg. Exterior
ng: Lithonia. Tinted glass: PPG Industries.
doors: Weyerhaeuser Co. Hollow-metal
: Ceco. Lever-handle locksets: Schlage.
es: McKinney. Exit devices: Sargent. Corridor
ng: Kentile. Ceilings: Armstrong World
Industries. Paints: Ameritone. Uplighting and high-bay fixtures: Lithonia.

Pages 76-85
Perry Community Education Village
Perkins & Will/Burgess & Niple, Ltd., Architects
Brick: Glen-Gery; Endicott. Curtain wall and entrances: Tubelite. Windows: EFCO. Precast: Olds Precast. Glass: Tempglas. Translucent panels: Kalwall. Metal paint: Tnemec. Area lighting: Gardco. Roofing: JPS Elastomerics. Flooring: Forbo. Uplighting: SPI. Perimeter heaters: Trane. Downlights: Lithonia. Pool deck: American Olean Tile Co. HID lights: Holophane. Joists: fabricated by Kilroy. Gym floor: Horner. Bleachers: Hussey.

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P. W. Johanson High School
Wolff/Lang/Christopher Architects
Exterior masonry: Interstate Brick. Single-ply roofing: Trocal. Exterior lighting: Cooper Industries (Halo; Metalux). Concrete finish: Davis Concrete Color. Interior and exterior paints: Fuller-O'Brien. Hollow-metal windows and doors: Security Metals. Laminated glazing: Viracon. Carpeting: Lee's Commercial Carpeting.

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William H. Lincoln School
Graham Gund Architects
Brick: Lawrenceville. Cornice: DuroFiber. Clock: Electric Time. Benches: Weatherend. Exterior lights: BEGA. Windows and entrance: EFCO. Glazing: Viracon. Roof shingles: Evergreen Slate. Interior wood doors: Curries. Locksets: Schlage. Acoustic ceilings and resilient flooring: Armstrong World Industries. Tile flooring: Nova. Pendants: Lam. Elevator: Dover. Paints: Sherwin Williams.

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Paseo Academy of Visual and Performing Arts
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Storefront windows and entrances: Kawneer Co. Modified-bitumen roof: TAMKO. Paints: Sherwin Williams. Theater lights: Lee/Colortran.

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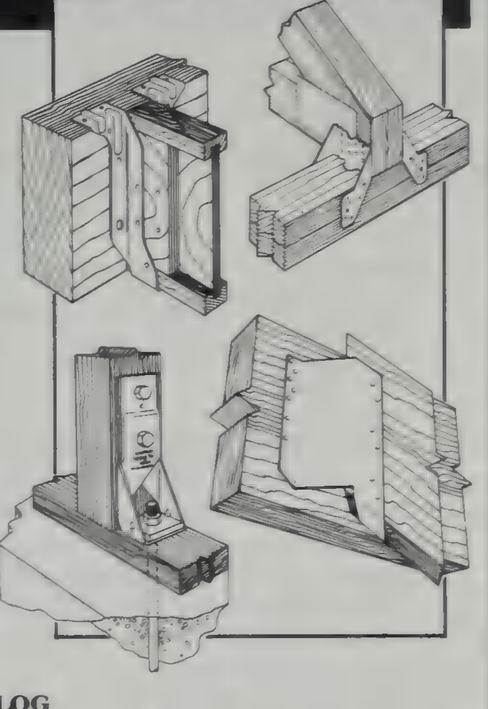
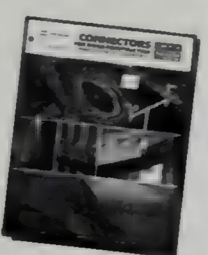
Hurd Sports Center: Masonry: Potomac Valley Brick. Skylights: Kalwall. CMU: Fred Maire. Wood flooring: Martin Surfacing. Interior doors: Weyerhaeuser; Eggers. Windows, entrances: Kawneer Co. **Huffington Library:** Brick: Potomac Valley Brick. Roofing: Buckingham Slate. Wood windows: Pella. Custom cherry casework and paneling: Progressive Woodworks, Inc. ■

Corrections

- The *CAD Rating Guide* reviewed on page 25 of the June RECORD offers a $49 discount for owners of previous editions.
- Hillmann DiBernardo & Associates, Inc. acted as Lighting Design Consultants for Christ Church, Oyster Bay, N. Y. [RECORD, May '95, pg. 34-35].
- The International Festival Area for the '96 Summer Olympics, Atlanta [RECORD April '95, pg. 11] should have been credited to the joint venture of MSTSD, LAM Design, Inc., and Williams Russell Johnson, Inc. ■





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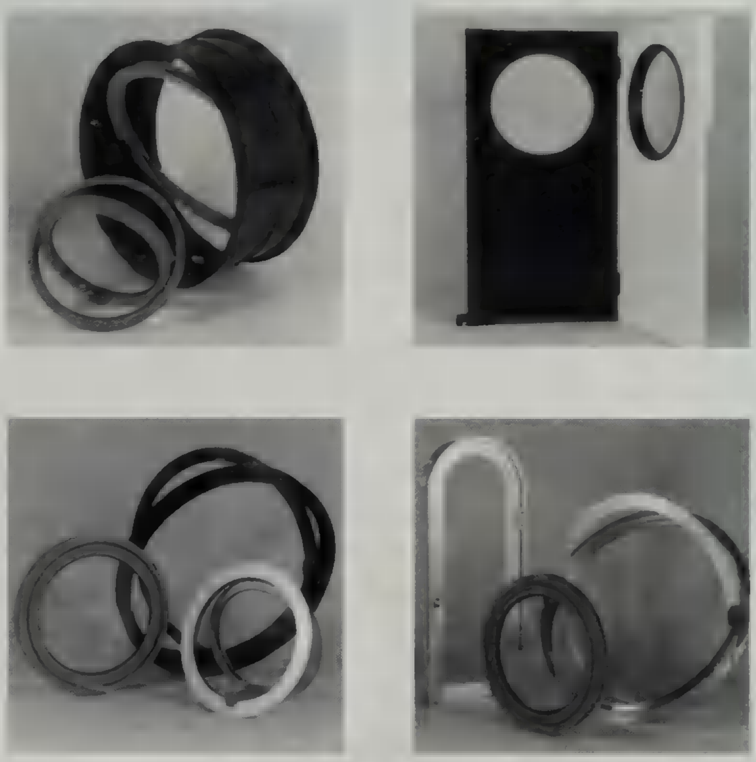

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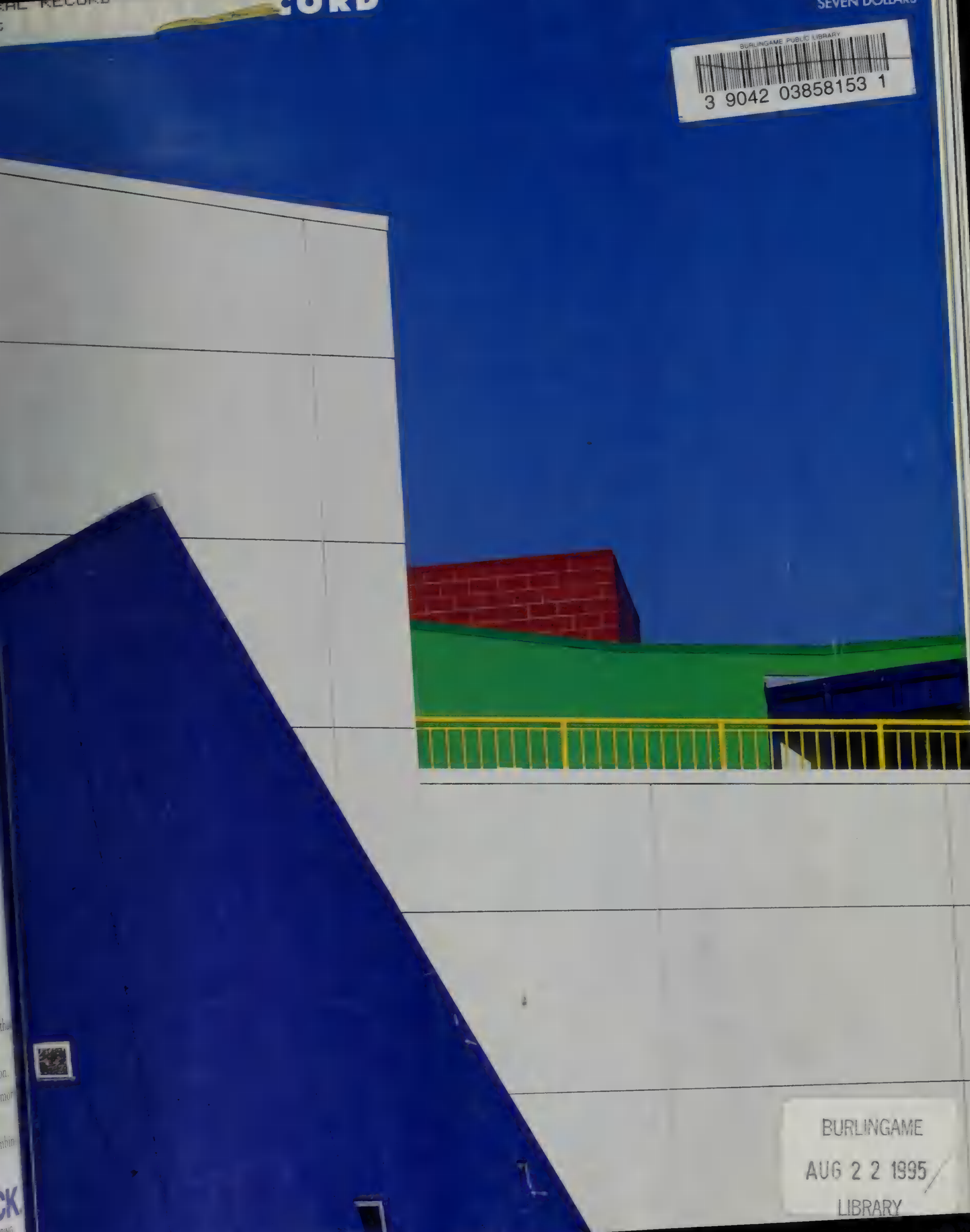

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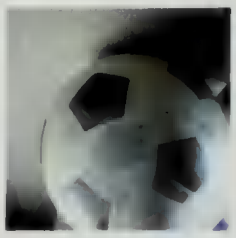

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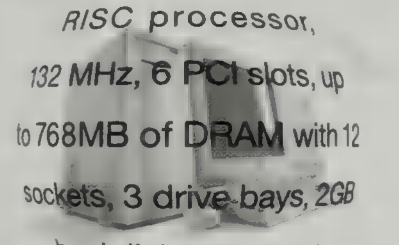

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ADA Rebuttals

As the chairman of the Access Board (and the first practicing architect to hold this position), I write to express my concern over the inaccurate reporting in "ADA: Barrier Free It Isn't," by Katherine Kai-Sun Chia [ARCHITECTURAL RECORD, April 1995, pages 32 to 33, 113]. Even the photographs—a private residence and a church—are misleading: neither is a facility covered by the Americans with Disabilities Act (ADA).

For example, ADAAG was adopted by the Departments of Justice and Transportation in 1991 as the (enforceable) standard for accessible design in new construction and alterations under the ADA. There is nothing voluntary—or "recommended"—about ADAAG. The guidelines are the law. Constructing a building that does not comply with accessibility requirements constitutes discrimination, which is illegal.

While there is much in this article that I—and the Access Board—would dispute, I do not think it helpful to rebut every assertion made by the author. Surely it would be more useful to practitioners if reliable information and resources on accessibility issues and the ADA were recommended to them.

John H. Catlin, AIA
Chairman, U.S. Architectural
and Transportation Barriers
Compliance Board
Washington, D.C.

To clarify the record, I was appointed in May 1993 to a 27-[illegible] Access [illegible] by the [illegible] Architectural and [illegible] Barriers Compli[illegible] (ATBCB). ATBCB is [illegible] as the Access Board. The Access Board, comprised of presidentially-appointed individuals, is chaired by John H. Catlin, AIA. The purpose of the Recreation Access Federal Advisory Committee was to gather information and make recommendations on developing accessibility guidelines for recreation facilities and outdoor areas. I served as Chairman of the Sports Facilities subcommittee. The full committee completed its work in July 1994.

Your article states that ADA Accessibility Guidelines are being continuously compared to the ANSI A117.1 standards and being revised. This is not accurate. Federal regulations establish very specific procedures for changes to federal design standards. The federal regulatory process requires public notices, public comment, and regulatory analysis before federal standards can be changed. For recreation facilities, the Access Board elected to use the Federal Advisory Committee process to involve private citizens with specific expertise to help recommend design standards for these special facilities.

Your article states that ADAAG standards are recommendations. Most are very specific requirements, though innovative alternatives are allowed if they yield equal or greater accessibility.

The quote attributed to me in the second to last paragraph is not accurate. ADA is not a complaint-based process. The enforcement of ADA is complaint-based.

Paradigm Design Group and its parent organization, the Paralyzed Veterans of America, work closely with the Access Board to help promote voluntary compli-

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August 4-6
Society of Marketing Professional Services annual conference, Westin Copley Place, Boston. Call SMPS at 800/202-7677 for further details.

Through August 13
Exhibition of "Rem Koolhaas and the Place of Public Architecture" consists of six architectural designs and three urban projects by the Dutch architect. Wexner Center for the Arts, Ohio State University; 614/292-0330.

Through August 19
"Fair Visions: Robert Moses and the New York World's Fair" exhibition includes a 7-ft model of the 1964-'65 World's Fair and shows the relationship between it and the its 1939-'40 predecessor. Lobby, 10 Columbus Circle, New York City, 212/360-3065.

Through August 19
"American Arts & Crafts: Virtue in Design" exhibition showcases 100 examples of furniture, ceramics, and metal work by Frank Lloyd Wright, Gustav Stickley, and Louis Comfort Tiffany, among others. Grand Rapids (Mich.) Public Museum. Call American Federation of Arts at 212/988-7700 for details.

Through August 22
An exhibition of transparencies showing the work of a "younger generation of international architects" is on view at the Museum of Modern Art, New York City, 212/708-9400.

Through August 25
A New York City Landmarks group show of paintings, photography and views by over 25 artists of city landmarks is on exhibition at Michael Ingbar Gallery of Architectural Art, New York City. Call 212/334-1100 for details.

Through September 4
"The Architecture of Bruce Goff, 1904-1982: Design for the Continuous Present" exhibition at the

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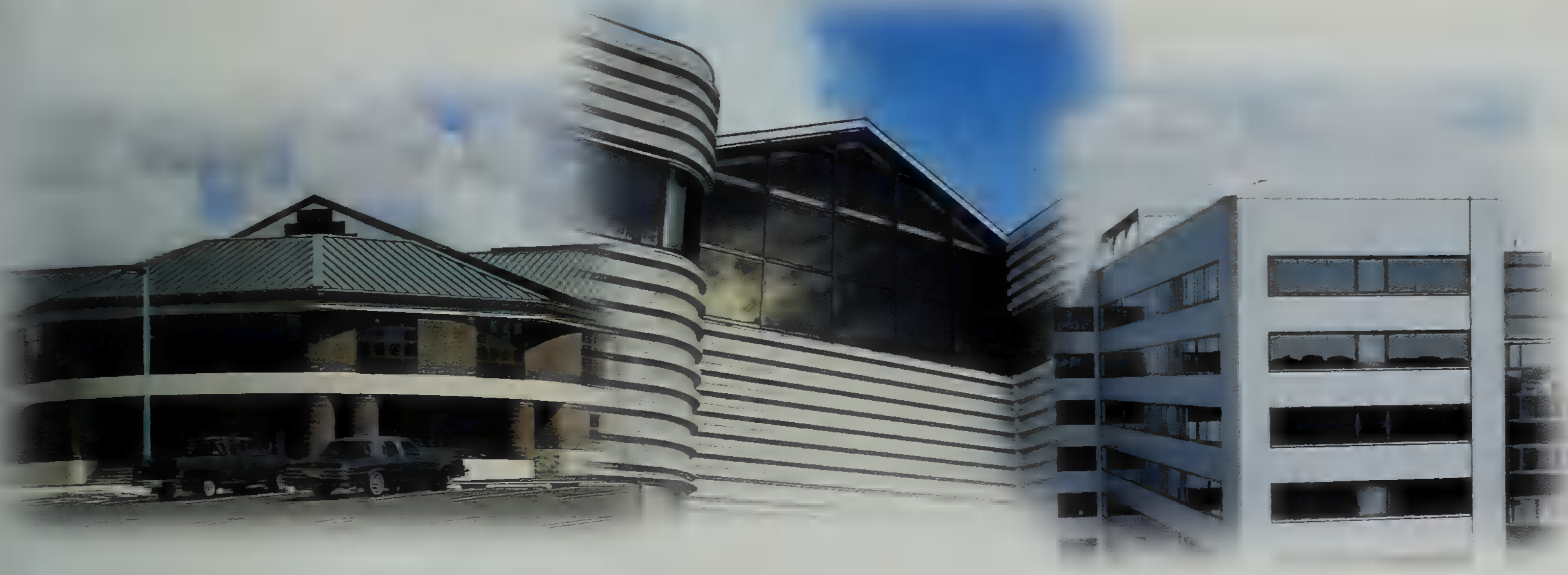

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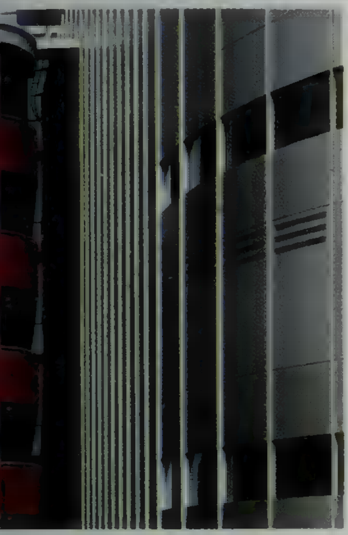
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ARCHITECTURAL RECORD Editorial

What Price the Arts Endowment ?

The National Endowment for the Arts is one of those concerns that lots of people love to hate. It spends public money, supposedly, to subsidize obscene art, serve the elite interests of the well-to-do, using public resources that could more gainfully be allocated to housing, health care, and other social ends, while a sizable ratio of its grants ends up paying the salaries of art group administrators instead of going to the artist. Private support to non-profit arts groups is an added target for brickbats, in part because deductions by donors are said to remove billions of taxable dollars from the nation's pool, and are an added form of arts subsidy by the government.

Champions of the Endowment and of tax-deductible private donations argue with some reason that there are good sound economic and social grounds for supporting the arts, quite aside from any intrinsic value to the citizen of art as art. Art contributions are "not an expense but an investment." Cited economic benefits include income to owners of nearby restaurants and parking garages; conferences and trade shows; and tourism attracted to cities with strong art offerings (the Port Authority of New York and New Jersey said recently the arts in New York City in the year 1992 generated $3.6 billion in such collateral expenditures.)

These arguments are important, but they tend to sidestep the real issue: of what value are the arts? It reminds one of the classic restaurant review by former *New York Times* restaurant critic Craig Claiborne, who said about a certain restaurant that its chief asset was its proximity to the Theater District. In other words, an institution should be able to fly on grounds other than solely its collateral values.

Unlike basketball, faster computers, and three-day cruises to Aruba, the arts typically do not make a profit. The reason is in part that the arts in this country and elsewhere have never really been an activity the general public wants. Were this not so, the public would willingly pay, as it does for social security and fighting crime. (For an idea of how the federal government classifies the arts, the Endowment is in one funding package along with agriculture, energy, and Indian Affairs.)

I doubt if there's an American city, large or small, where an architect or other design professional hasn't at some point in the past 25 years obtained an NEA grant. Funds are clearly needed to support research ranging from technology all the way to community and urban affairs. Most of such undertakings are beyond the scope of the private design and construction community, with its skimpy profit margins. Much more, too, needs to be done in the public schools and colleges to raise the public's level of architectural enlightenment.

At this writing, the future funding and indeed the future of the Endowment itself are caught up in a strident squabble. What is needed before any irreversible injury is done is a tough look at NEA's proper mission. What are the yardsticks, in these flinty-eyed '90s, that must be applied to the grant-giving process to measure which grants have little or no ripple effect and those with wide fallout? What level of direct public financing, as opposed to private tax breaks, is needed to maintain a useful level of artistic activity? How is this to be measured? What is the merit in distributing tiny Endowment funds to hundreds of small grantees versus committing to a few a sum that will make a difference?

Until there are answers, Congress will, and the architectural profession should, keep questioning NEA's long-term viability. *Stephen A. Kliment*

A. Kliment, FAIA

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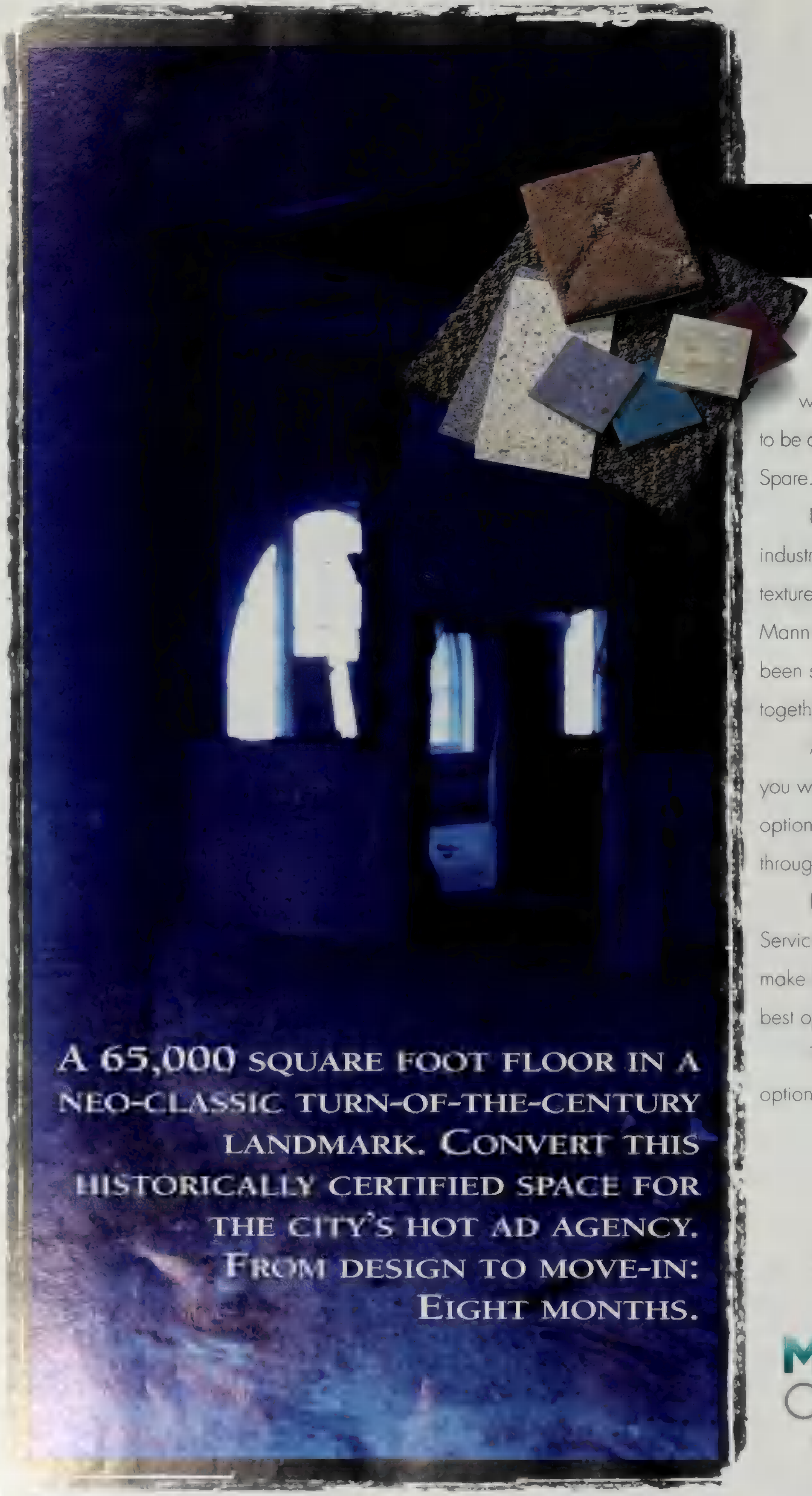
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w York State

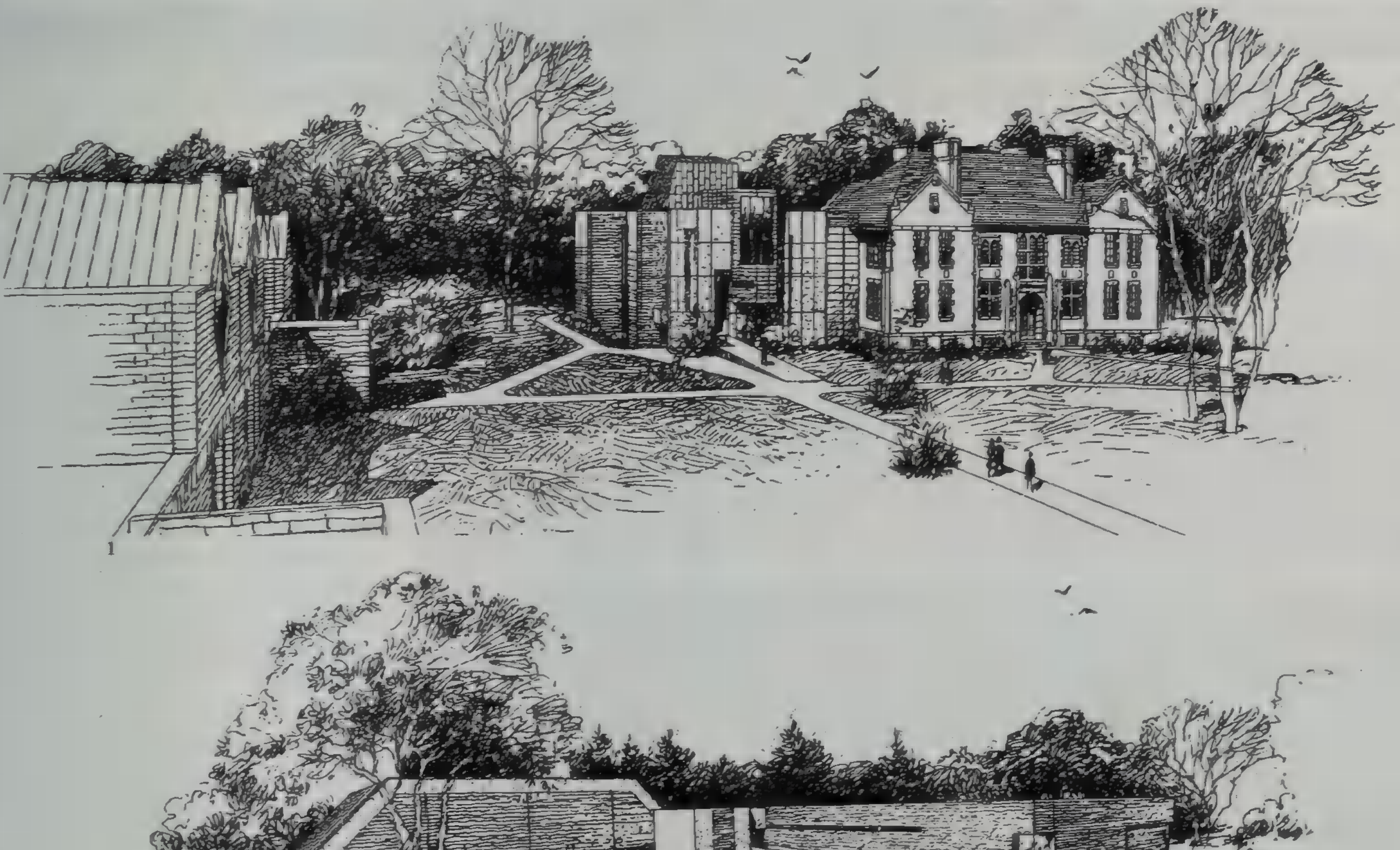
od Williams and Billie Tsien Unify Disparate Campus With Two New Buildings

n the most pristine settings can use some ing. Two new buildings by Tod Williams Billie Tsien will forge a sense of unity purpose at the Emma Willard School in y, N.Y. An elaborate science building and tatorium will add shape to the school's wling campus and subtly reconcile a gepodge of opposing styles.

natatorium forms an L with a more cal, existing gym (2). A long, gentle ramp oses the third edge of an informal court- d, and then runs along the building's facade. Inside, the same ramp switches back several times along the interior wall, seeming to suggest the rhythm of waves. The ramp also becomes a forum of sorts, where students can sit and talk, and look down over the yard or the pool.

Across campus, the science building is wedged between the 1930s neo-Gothic Weaver Hall and a more abstract stone structure designed by Edward Larabee Barnes in 1965 (1). The new building's groundface concrete and limestone facade serves as a unifying element between the two conflicting styles. The building also gives a harder edge to the century-old school's main quadrangle. Inside, the stair tower faces the courtyard and the classrooms are pushed to the back.

The building's form—two crucifixes locked together—is based on a fractal model—a anthropological term for a social structure in which small, independent groups are bonded to make a greater whole. Each arm of a crucifix forms a two-student work area. Construction begins next month. *Nicolai Ouroussoff*



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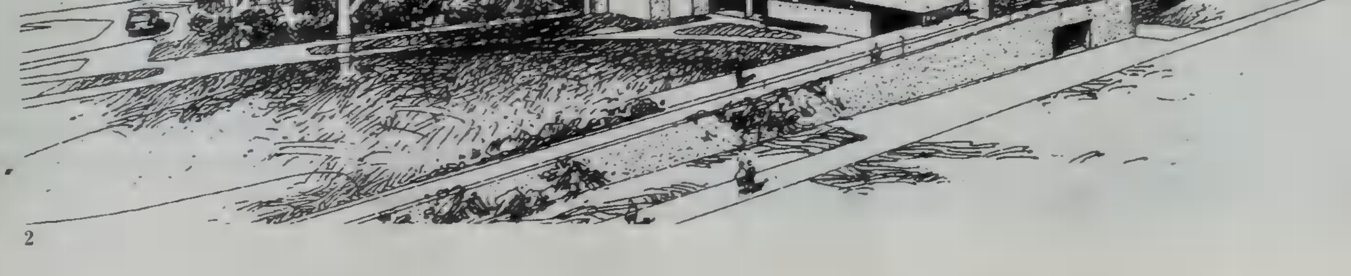

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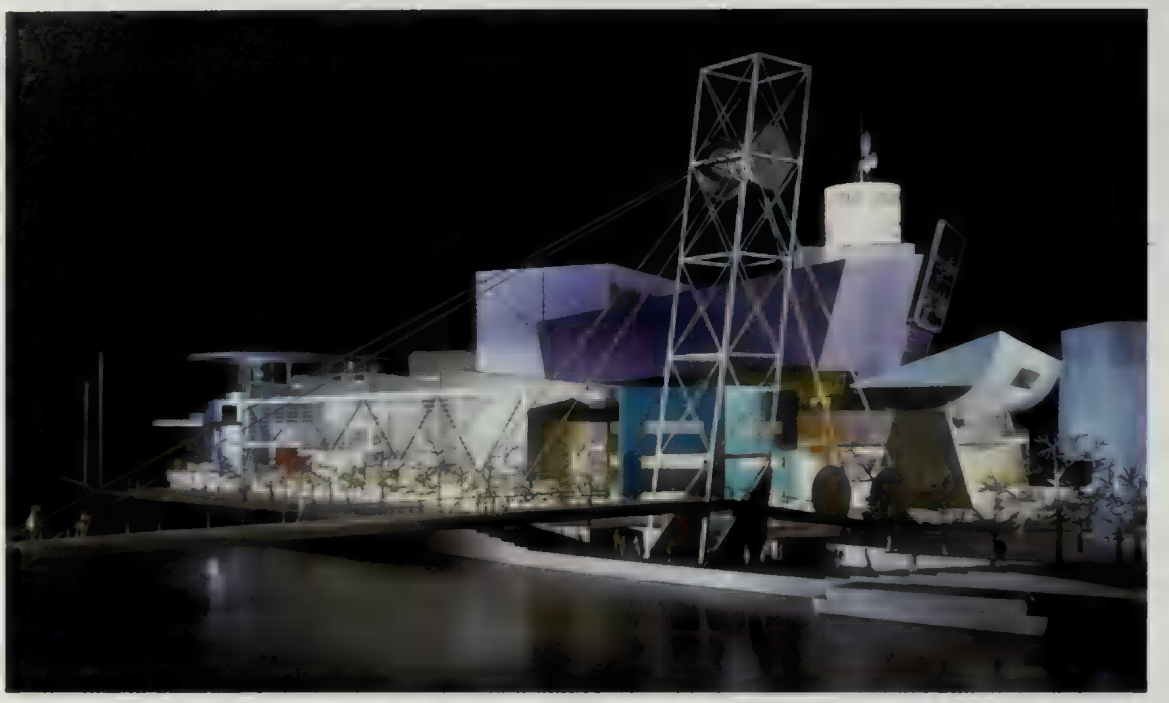
England

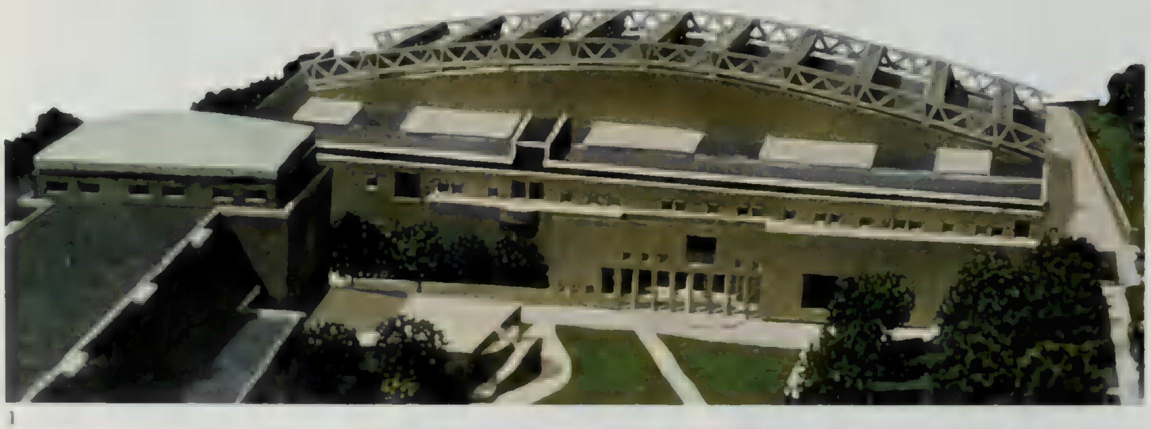
Michael Wilford's Leisure-Time Complex To Drop Anchor at a Canal-Side Quay



Michael Wilford's Lowry Centre is a col
collage of ship-like geometric forms on
of a quay near Manchester, England. Vi
will approach the complex across a tria
plaza, which can be covered in winter. T
then pass between two gallery shops—
uitous as today's art spaces—and travel
along walkways that wrap around two th
aters, art galleries, shops, and bars. The
theaters, on axis with the main entry, do
nate the massive arts complex; the 1,65
Lyric theater is the heart of the project.
From its foyer, audiences will look out o
the ship canal. An administration tower
crowned with a glowing display sign. In
foreground, a canted structural tower
ports a bridge leading across a canal. Th
£50-million ($80-million) building will be
pleted in 1999. ■

Pennsylvania and Michigan

PACs: A Building Type That's Playing Everywhere



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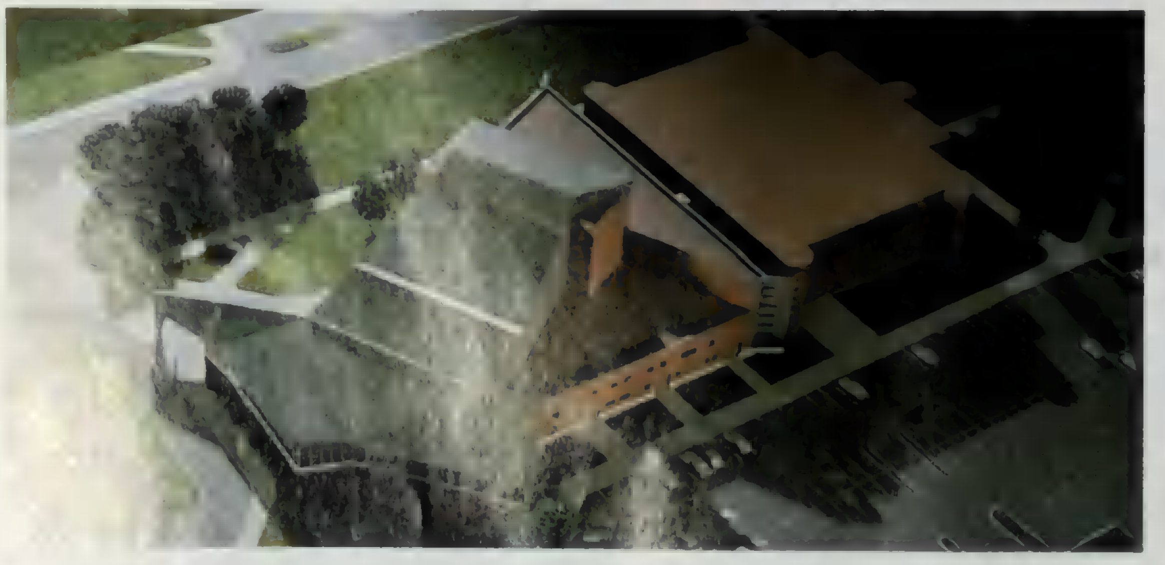

Underlining the growing importance of t
performing-arts center as a significant b
ing type, two more PACs are on the boar
At Lehigh University in Bethlehem, Pa.,
Dagit Saylor Architects' Zoellner Perfor
Arts building (1) is nimbly designed to pl
down its massive scale. The $22-million b
ing includes a 1,000-seat music hall,
350-seat drama theater, and a third, "bla
box" theater. The bulky theaters are shel
tered behind smaller-scale academic spa
which border a lawn. The two main theat
are also set back to back, creating an arc
roof and eliminating the need for a cumb
some flyloft.

Gunnar Birkerts $15-million performing-
center (2) anchors one end of the Michiga
Technological University's linear campus
The 72,000-sq-ft center shifts slightly off
campuses east-west axis to provide views
Portage Lake. The interior of the 1,280-s
main theater is sheathed in wood, and
reconfigured to adapt to smaller performances. A faceted copper roof will dramatically mark the campus's eastern entry. ■

iefs

itects Aid Special Olympics
Connecticut Chapter of the American
itute of Architects gave $300,000 in ser-
s to the Special Olympics World Games
in New Haven last month. Projects
ded the development of a mock New
land fishing village and an equestrian
ie.

servation
international preservation center has
ed in St. Petersburg, Russia. Founded by
ity of St. Petersburg, the Russian
demy of Sciences, and the Getty Conser-
on Institute, its mandate is to defend the
ural heritage of the city.

rds
Dunnette, a New York City architect,
awarded the top prize at this year's
h Annual International Competition of
itectural Artwork for his rendering of
Pei's pyramid at the Grand Louvre. The
rd is sponsored by the American Society
rchitectural Perspectivists.
New York Landmarks Conservancy
rded Pratt Institute a merit citation for
missioning an "existing-conditions
rt" on its century-old campus, which
des a Romanesque revival building by
b and Rich.
National Institute for Architectural
cation has awarded Martin S. Felsen of
nia Polytechnic Institute its $7,000 Paris
. Other winners were Tsutomu Sato,
ersity of California at Berkeley ($5,000);
Charles E. Stone, Cooper Union, $3,000.
talie Shivers of the National Trust for
orica Preservation has won The James
ston Fitch Trust Grant of $10,000 for her
ect, "Research to Support the Preserva-
of Southern California's Early Modern
itecture."

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igned
ne Marshall, dean of the College of
hitecture at Kansas State University, has
gned, saying his continuation as depart-
t head "would constitute collaboration in
degradation of the architectural educa-
programs" at KSU. ■

Denmark

International List of Architects to Design 'Kolonihavehus' for '96 Exhibition

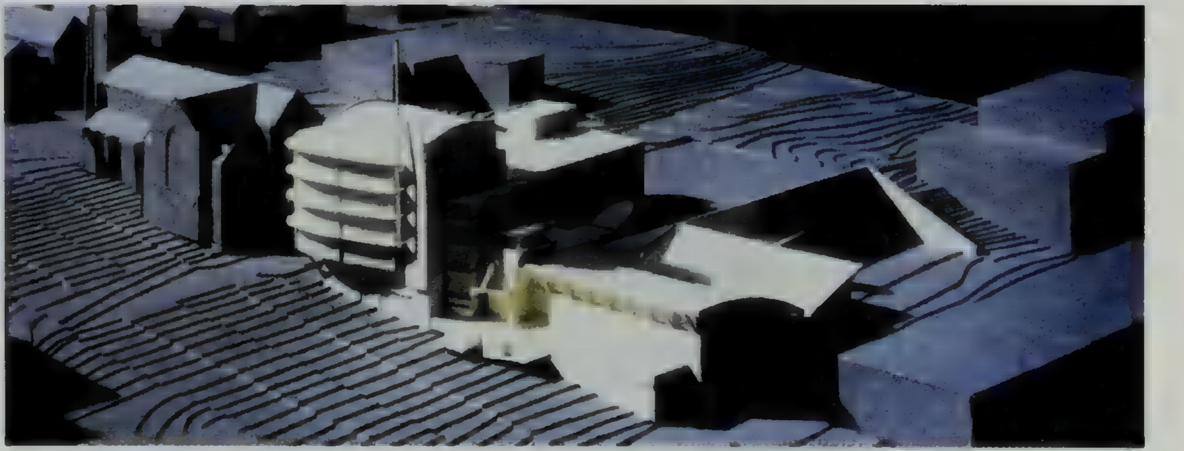
© Kirsten Kiser photos.

A collection of elite architects is designing a "Kolonihavehus" as part of Copenhagen's designation as the cultural capital of Europe in 1996, according to Kirsten Kiser and Christian Lund, architects and curators of the project. The 13 architects will each design a diminutive 65-sq-ft tower house based on the 19th-century Danish garden-community model. Kolonihavehus were originally created on the outskirts of the city by the Danish government to provide workers with a means to escape their daily toil. The government leased small parcels of land to laborers who built the tiny sheds themselves and tilled their gardens in a pastoral commune.

Students from Denmark's Royal Academy will help build full-scale models on a lot landscaped as a traditional "Kolonihave." The architects are: Josef Kleihues, Germany; Richard Rogers, England; Aldo Rossi, Italy; Dominique Perrault, France; Alvaro Siza, Portugal; Markku Komonen, Finland; Mario Botta, Switzerland; Michael Graves, U.S.; Arata Isozaki, Japan; Leon Krier, Luxembourg; Richard Meier, U.S.; Enric Miralles, Spain; Henning Larsen, Denmark. ■

New Jersey

Episcopalian Prep School to Rise In the Heart of Newark



In Newark, the Hillier Group with Todd Geter Architects has designed a preparatory school that expands on the "'moral center" of the community. The 60,000-sq-ft building is divided into two components. A family clinic, church administration, and bookstore are sited on a corner, with a bridge connecting it to St. James Church across the street. The school itself is set back along a side street, and a stone base visually unites the two. The $10-million project will be built with funds raised by the city's First Episcopal district

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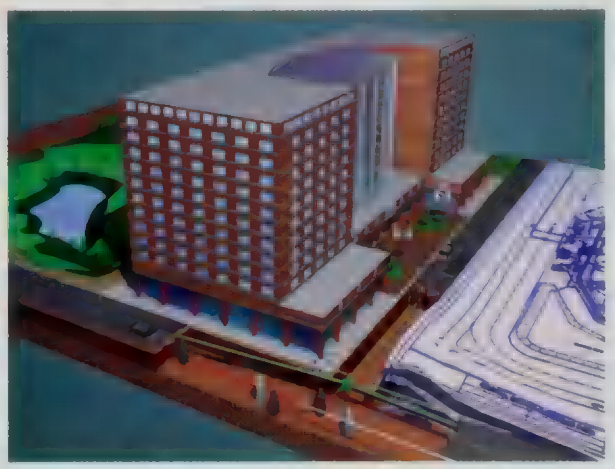

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illiamsburg, Virginia

ederal Aid to Housing, Size of Markets opped June Housing Conference Agenda

e status and future of housing in this
ntry underwent rigorous scrutiny this
t June when an invited group of 120
ısing leaders met at Williamsburg,
ginia for two days of what is known in
lomatic circles as "frank" discussion.

e major sponsors were: The McGraw-Hill
mpanies' Construction Information Group
G), publishers of ARCHITECTURAL
CORD; Harvard University's Joint Center
Housing Studies; and the National
using Endowment.

officials from government, including the
cretary of Housing and Urban Develop-
nt and three assistant secretaries, top
ss from the National Association of Home
ilders, the National Association of Real
tate Brokers, FNMA, Freddie Mac, state
using agencies, mortgage lenders and
using advocacy groups, manufacturers,
l city officials got a lot of pressing housing
ics on the table. Six such topics emerged:

estructuring the feds. A downsized federal
e was seen for housing, balanced, in con-
st, by a larger state and local role. A key
ow in HUD's quiver continues to be the
mmunity Development Block Grant
DBG) program, first launched in the Nixon
ministration and geared to leaving devel-
ment decisions, including housing, to local
els of government.

e federal government hopes to cut the
ts of homeownership through reduced
ancing, production, and closing costs. It
pes to encourage homeownership by
moving other barriers, including racial
es, thereby increasing choice among
rican-American, Hispanic-American, and
- and moderate-income households.

eyond bricks and mortar. It wasn't
ugh, many claimed, to provide housing,
pecially so-called "public" housing, without
providing critical other amenities, such
health and day care, education, security,
ygrounds and, above all, jobs. "You can
ld housing. You cannot build homes," said
D assistant secretary Andrew Cuomo.

new market for homeownership.
arge untapped market exists among the millions of new immigrants. A Peter D. Hart Research Associates survey revealed that household median-income levels among immigrant families were close to those of native-born families ($28,000 versus $30,000), yet only 40 percent of immigrant adults own homes, compared to 65 percent among native-born families. Homebuilders should rejoice at this statistic, with some 9-million persons expected to immigrate in the '90s, more than at any time since 1901 to 1910.

- *New technology.* Products will be developed to take the place of those made from endangered sources, including wood. Pre-engineered systems (for example, roofing, insulation, and siding) were proposed, not for the first time in recent history, to control costs.

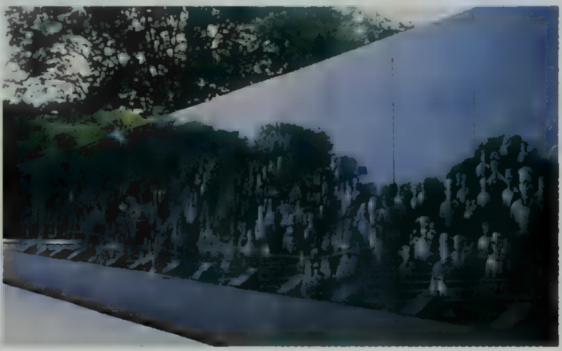
- *Revitalizing central cities.* The case for revitalizing central cities was forcefully made by several participants who stressed the debt owed to central cities for providing—at no cost to the suburbs—sports stadia, art museums, airports, convention centers, as well as jobs. Andrew Cuomo promoted the Clinton Administration's empowerment zones initiative, in which the government would invest $250 million in tax incentives and $100 million in cash grants to distressed areas in each of six U.S. cities, with the goal of attracting private investment.

- *State of the nation's housing.* The Joint Center for Housing Studies' State of the Nation's Housing 1995 report found among other trends that the growth in numbers of households in the South and Southwest continues to exceed that in the North and East; that the home-buying 25- to 34-year-old group is largest in the cities of Los Angeles and Atlanta; that growth in single-person households will continue; and that only 55 percent of households are married couples, compared to 78 percent after World War II.

Summing up, CIG president Stephen Bonner underscored the changing housing environment, above all from the political angle: "We must sort out the implications of less money available at the federal level. Based on links forged at the Conference, we can decide how to advance, as individual forces in the industry, or as a more cohesive group." *S.A.K.*

Washington, D.C.

Korean War Remembered

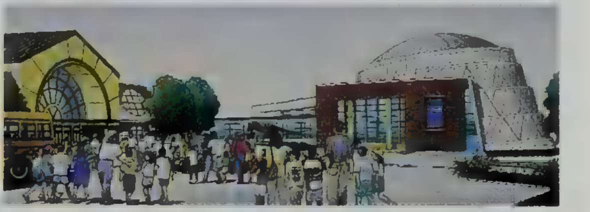


© *Louis Nelson Associates*

The Korean War Veterans' Memorial was unveiled last month in Washington, D.C. The elaborate stone wall sits nestled in a wood south of the reflecting pool, opposite Maya Lin's celebrated Vietnam memorial. The new monument is a collaboration of three designers: Cooper-Lecky Architects is the architect of record; Frank C. Gaylord created the central sculpture; and Louis Nelson Associates designed the wall. The triangular site pierces a ring-shaped pool, with the words "Freedom is not Free" at its center. A granite wall, with ghost-like images of doctors, bomber pilots, seamen, and various support troops sandblasted into its surface, runs along one edge of the site. Reflections of the the haunting forms intermingle with those of visitors to the memorial. ■

Indianapolis

For Kids, Play's The Thing



Browning Day Mullins Dierdorf, Inc. has designed a playful new theater for Indianapolis's children's museum. A concourse with exhibition space connects the 32,000-sq-ft addition to the main body of the museum. The dominant structure of the addition is in the shape of a truncated cone, clad in copper, and housing the 320-seat theater and a 76-ft hemispheric projection screen. A smaller cone marks the night entry to the theater. The $14-million project is expected to be completed next summer. ■

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he American Roots of uropean Modernism

nes of the World to Come: European
hitecture and the American Challenge
93-1960
nadian Center for Architecture, Montreal,
ough September 24.

ere's something slippery about the
mise of this debut exhibition in the CCA's
bitious multiyear series "The American
ntury." While making an impressive case
t American architecture and technology
uenced pioneering European Modernists
ch more than portrayed in standard histo-
s, the case itself seems less important than
wonder inspired by the hundreds of
erse objects mounted by curator Jean-
uis Cohen. Europeans were both
cinated and repelled by what Charles
udelaire denounced as "these wonders of
tishness," Cohen shows. You can actually
, for example, how writer Bertoldt Brecht,
nmaker Fritz Lang, and the Russian
ists El Lissitsky and Alexandr Rodchenko
re influenced by widely published photos
en by a young Erich Mendelsohn of lower
nhattan's towers rising like weeds out of
dow-shrouded alleylike streets.

haps inadvertently, the exhibit shows that
currents of artistic influence flowed both
ys. While Cohen reminds us that the mar-
ous Fiat Lingotto plant (being renovated
by Renzo Piano) was modeled on the
egrated manufacturing processes pio-
ered by Henry Ford in Highland Park,
ch., its rooftop test track (an icon of func-
nalism for early Modernists) was a purely
lian esthetic fillip.

s exhibition is rare in that it doesn't make
wonder why you're looking at architec-
e on a wall. Many objects on display have
exture and density that doesn't reproduce
l (Mies's charcoal skyscraper sketches,
ssian photomontages and bombastic
ral-sized renderings, the delicate ink
wings of the Italian Futurists). It's also
e in architecture circles to have so many
titutions (58 from 14 countries) contribute
terial to one exhibition. This one's worth a
to Montreal, as it will travel only to
rope. Succeeding exhibitions (on F. L.
ight's landscapes, F. L. Olmsted, Disney's
eme Parks, and "The American Lawn")
come to America. *J.S.R.*

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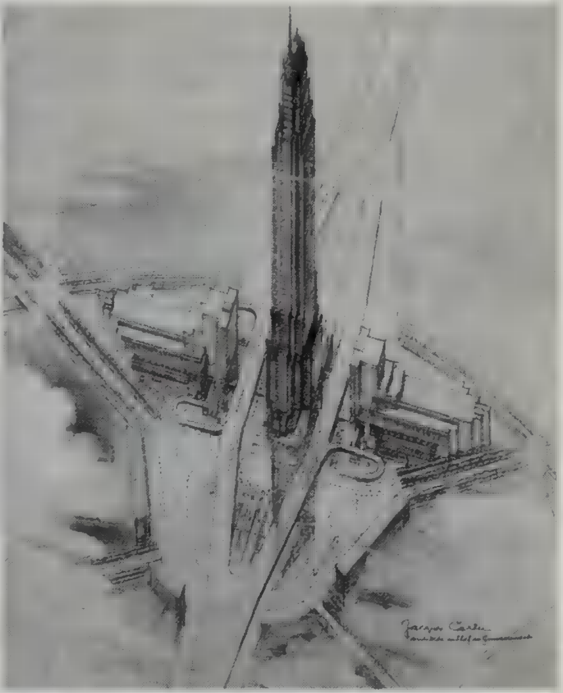

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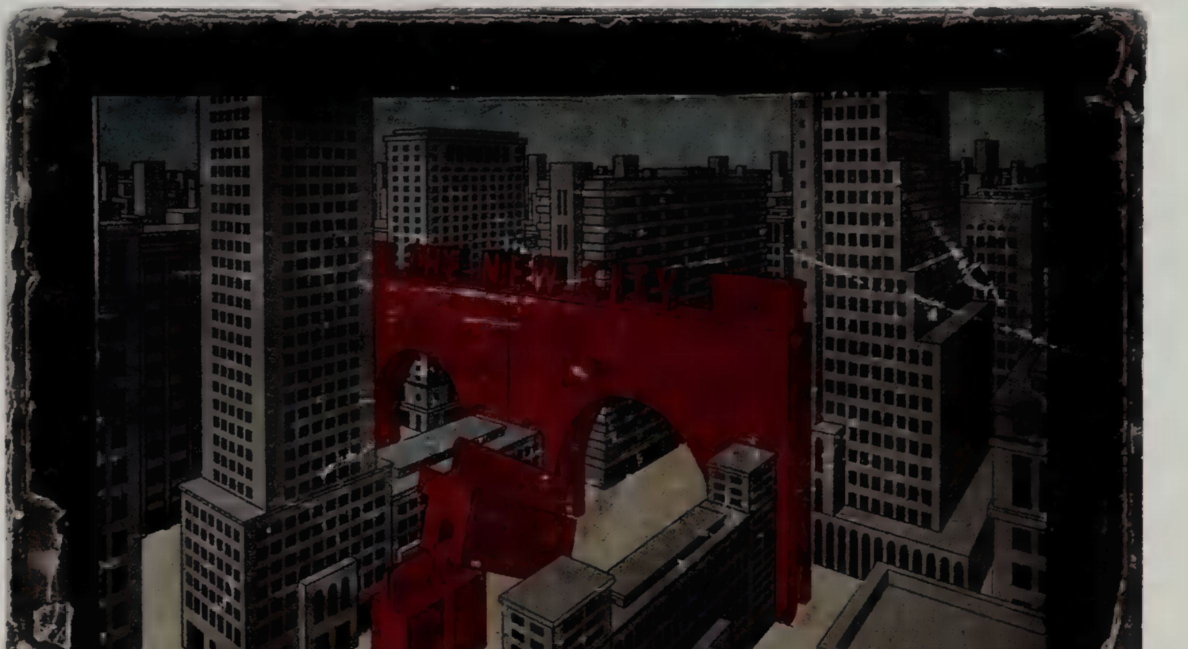
Left: "Through the Steel Lace of the Brooklyn Bridge," (1926), by Russian architect Viatcheslav Oltargevski. Above: Skyscraper project for La Défense, Paris, by architect Jacques Carlu (1934). Below: A game box, attributed to Wilhelm Kreis (Vienna, 1920s).



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Chris Eden photos

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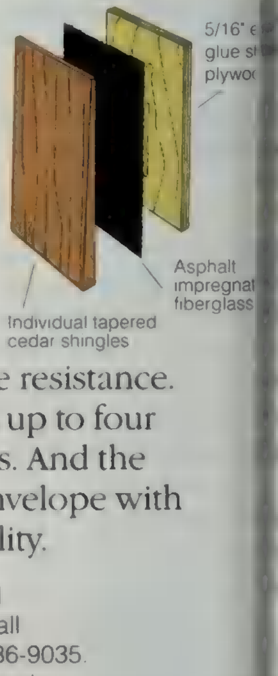

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-Wright:
ree for Your Computer

k Lloyd Wright: Presentation and ceptual Drawings, *produced by Luna ging and the Frank Lloyd Wright ndation Archives, 1995, $1,500.*
Ultimate Frank Lloyd Wright, *luced by Microsoft, 1995, $60.*
Frank Lloyd Wright Companion, *luced by Prairie Multimedia, 1995, $75.*

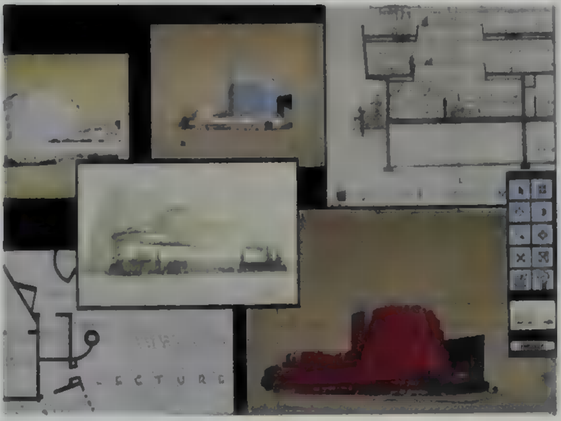
iewed by William J. Mitchell

ry architectural bookstore has a corner re the products of the Frank Lloyd ght scholarly industry jostle for shelf e. Now this competition has shifted to erspace. Three CD-ROMs documenting ght's work have recently been released.

most ambitious and impressive of the p is Luna Imaging's *Frank Lloyd ght: Presentation and Conceptual Draw-* . This four-disk collection contains nearly 0 high-quality color images of drawings the Frank Lloyd Wright Foundation hives, together with detailed documenta- on each drawing and project. It is a work eticulous scholarship. The color-imaging k has been done with great care to eve maximum fidelity and consistency, the documentation is extensive. A sophisted search engine is built in, supporting ble and convenient graphic browsing, searches, and full-text searches. This surely become an indispensable refer- for Wright scholars and aficionados.

rosoft's *Ultimate Frank Lloyd Wright* is ck hypermedia "edutainment," complete music and voice-over aphorisms. On one , it offers a comprehensive, intelligently nized introduction to Wright's life and k. In addition to text and 2-D images, it ides several excellent computer-generat- alk-throughs and some elementary 3-D eling capabilities. The interface is crisp, , and friendly. Novices will find this an ging alternative to print sources.

rie Multimedia's *The Frank Lloyd ht Companion* is a rather mechanical rking into CD multimedia format of the material contained in William Allin Storrer's book of the same name. Storrer's catalog of some 500 built works by Wright remains as useful as ever. Extensive cross-indexing has been added, so the material may be explored and assembled in many different ways. But the graphics of the CD-ROM are uninspired and the presentation makes only limited use of digital multimedia's unique capabilities.



Screen from Luna Imaging's FLW disk.

Since numerous books on Wright are readily available, what has been gained by publishing Wright in CD-ROM format? There are several potential benefits, and the CDs discussed here realize them to varying degrees. Most obviously, CD-ROM technology is much more cost-effective than color printing for recording large numbers of high-quality color images and disseminating them to limited, specialized audiences at reasonable cost; Luna's huge drawing database, in particular, exploits this capability. Secondly, digital multimedia productions recorded on CD can seamlessly combine text, images, audio, and video; this advantage is exploited in *The Ultimate Frank Lloyd Wright.* Finally, as all the projects vividly demonstrate, material in digital databases can be searched and navigated in new, powerful, and compelling ways.

But the CD-ROM format has its limitations, and many of its benefits can be realized more fully when multimedia databases are mounted on servers and accessed through high-speed computer networks; the recent explosive growth of the World Wide Web on the Internet demonstrates this. Compact disks are not the wave of the future, but are likely to be a short-lived, transitional phase in the evolution of electronic publishing.

iam Mitchell is dean of MIT's School of itecture and Planning and the author of of Bits: Space, Place, and the Infobahn.

Briefly Noted

The Architecture of Bruce Goff, 1904-1982: Design for the Continuous Present, *edited by Pauline Saliga and Mary Woolever. Chicago: Art Institute of Chicago and Prestel-Verlag, 1995, 119 pages, $25 (paper).*
The catalog for an exhibit running at the Art Institute until September 4, this book includes essays by architectural historian David De Long, architect Jack Golden, architectural patron Joe D. Price, and others. The essays, along with photographs and drawings, do a good job of capturing the spirit of Goff's unique body of work.

Richard Meier, *by Philip Jodidio. Cologne: Taschen, 1995, 176 pages, $25 (paper).*
A straightforward monograph, this book follows Meier's work from the Smith House in Connecticut, completed in 1967, all the way to the Swissair North American headquarters in Long Island, finished this year. Jodidio, the editor of the French magazine *Connaissance des Arts,* supplies a thoughtful essay that covers the usual points about Meier's buildings and his consistent approach to architecture. The book's design and production are right in sync with the architect's own values: crisp, clean, and high-quality.

Renzo Piano Building Workshop: Complete Works, Volume II, *by Peter Buchanan. London: Phaidon Press, 1995, 240 pages, $75.*
Although he sticks to the usual monograph formula of introductory essay, interview, and individual project descriptions, Buchanan provides so much information and insight on his subject that this book seems unique. Preliminary sketches, all kinds of drawings, lots of photographs, and text that goes well beyond the cursory descriptions found in most other monographs make this publication a real resource, not just a pretty catalog. The 17 works covered range from the Bercy 2 Shopping Center in Paris (1987-90) to Kansai Airport (1988-94) in Japan.

Mockbee Coker: Thought and Process, *by Lori Ryker. N.Y.: Princeton Architectural Press, 1995, 128 pages, $28 (paper).*
Text-heavy and somewhat disorganized, this monograph looks at the work of Samuel Mockbee and Coleman Coker, whose architecture is rooted in fertile Southern soil.

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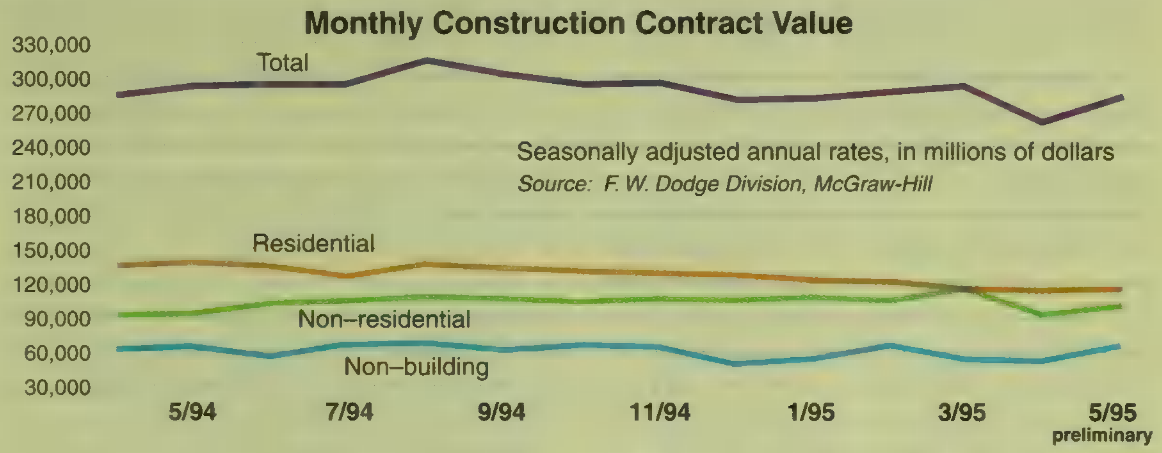
dicators

tinued non-residential momentum

ugh the lines haven't crossed, the slow continuous improvement in non-residen- construction now places it very close to ing, which had been stronger during and 1994. School construction has shown st continuous strength; it's up 18 percent the same 1994 period. Commercial con- ction has been mixed: in May, office and ehouse categories advanced; retail ned. Residential volume, virtually anged in May, suggests an end to the le-family decline. ■

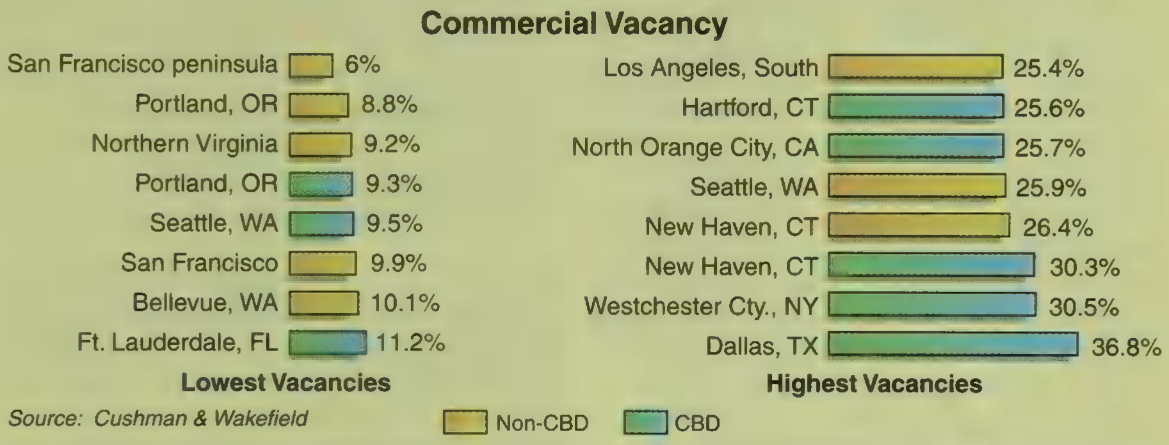


Seasonally adjusted annual rates, in millions of dollars

Source: F. W. Dodge Division, McGraw-Hill

office buildings back? Not yet

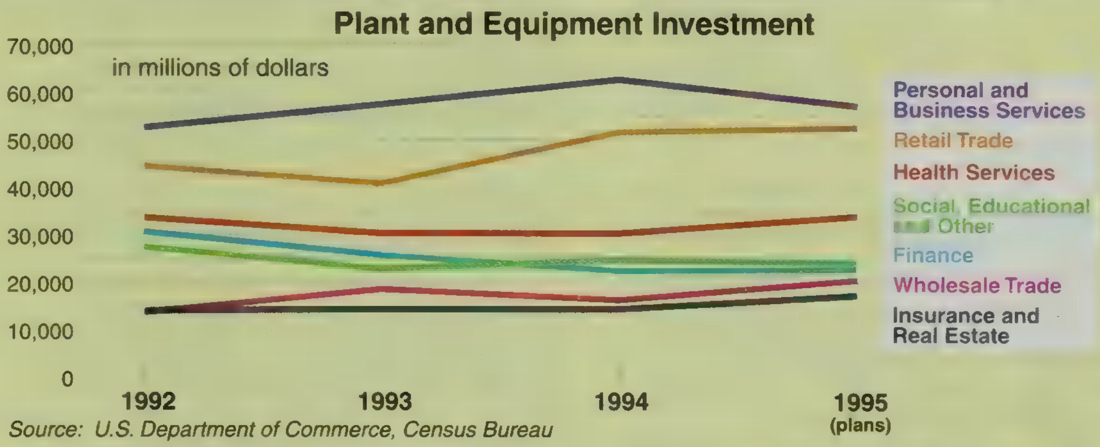
e vacancy rates below 10 percent—the ic number that makes new development ible, say experts—are finally beginning ppear in a few cities, according to first- ter figures from commercial real-estate Cushman & Wakefield. Nationwide, age vacancies still hover around 16.9 ent for central business districts (CBDs), 16.6 percent for non-CBDs. There is rovement, though. Last year the figures 18.4 percent and 18.3 percent, respec- y. ■



Source: Cushman & Wakefield

ere business is investing

ugh there is not exact correlation veen plant and equipment investment and ding construction, the overall 7 percent ease in spending plans projected by the artment of Commerce bodes well for mercial construction. The charts, ever, suggest variations based on busi- type, with wholesale and retail trade on pswing, followed by health care. The nward trend in personal and business ices may be balanced by upward momen- in insurance and real estate. ■



Source: U.S. Department of Commerce, Census Bureau

ort Takes

▪ **More on-line players:** Most of the on-line services profiled in our earlier report have expanded their offerings (March 1995, pages 40-41, 113). Two new services have since entered the field. AECNET, based in Northport, N.Y., is a private bulletin-board service intended to bring the architecture, engineering, and construction fields together. It has an easy-to-navigate interface and has attracted a number of industry associations. For info, call 516/754-3020 or info@aecnet.com (e-mail). The Global Construction Network is oriented primarily to contractors, but offers forums on such issues as partnering. Info: 800/576-webb (phone), jantevy@gcn.net or url http://fminet.com (e-mail).

▪ **New EIFS Guide:** A new guide from respected ASTM offers long-needed independent design and specification data for these synthetic-stucco assemblies: *Exterior Insulation and Finish systems: Current Practices and Future Considerations* ($45, $49 non-members), by Mark F. Williams and Barbara Lamp Williams. ASTM, 1916 Race Street, Philadelphia, PA 19103-1187. ■

There's No Claims Crisis Now, But New Challenges Loom

By Tom Ichniowski

Ten years ago, architects were enmeshed in a liability crisis. Claims had soared, with premiums sometimes leaping by 100 to 300 percent on renewal; even then, insurance was scarce. When coverage was available, it was expensive, pegged at 4 to 5 percent of firms' revenues. Architects had become "another pocket to pick" for attorneys, contends Elliot P. Gleason, a senior vice president at DPIC Cos. Inc., Monterey, Calif., a large insurer.

Claims have by no means disappeared, but quietly the crisis has faded. Though the average size of claims has risen, their frequency is down sharply. A weakened design and construction market in recent years is one factor, but industry officials agree that architects share the credit for the turnaround by managing their risks much more aggressively (chart opposite). On the other hand, the amount of individual awards is increasing, evidence of a tougher stand by some owners in making claims and litigating them.

Today, architects are employing an array of tools to manage risk. Some firms still shy from the most claims-prone types of work, such as condominiums, asbestos abatement, and environmental-cleanup work. But a practice that manages risk well, say insurance officials, can safely take on work that others have avoided.

"Remarkable decrease" in claims

Data show the trend. Schinnerer says claims against architects and engineers it insures have plummeted from a peak of 42.2 per 100 firms in 1984, to 22.5 last year, a level that has held through May 1995. "That's just a remarkable decrease," says Ava J. Abramowitz, vice president for program services at Victor O. Schinnerer & Co., Chevy Chase, Md., underwriting manager for CNA, the largest U.S. issuer of liability coverage for design firms. Gleason of DPIC, the No. 2 A/E liability insurer, says that while the number of firms DPIC insures has jumped, "The claims frequency is quite flat." He says, "I think that's a good sign." More insurers are [illegible] coverage, and premiums are [illegible] 3.5 percent of billings.

[illegible] is Washington bureau chief [illegible] Record.

While the soft construction market is a factor, Paul L. Genecki, a Schinnerer senior vice president, notes that architects' fees have been "up rather steadily and significantly" since 1992 and claims frequency hasn't increased. "The picture is definitely better," says Christopher R. Clark, director of AIA's practice-management programs.

Individual firms generally agree. At Ellerbe Becket, Minneapolis, claims rose after the 1988 acquisition of Welton Becket, Santa Monica, Calif., but since then, "they have steadily declined," says Douglas C. Green, senior vice president and general counsel. From about 17 relatively significant claims, the number has dropped to two. And on an ongoing basis, claims are "less frequent," he says. Why the downturn? Green cites a "much greater inclination of people to want to work things out and resolve matters."

Likewise at RTKL Associates Inc., Baltimore, claims have declined over the past three years even as volume of work went up, says chairman and chief executive officer Harold L. Adams, "but I think also that our firm had established a lot more quality-control checks," and those are showing results, Adams says. For instance, RTKL uses much more peer-review and other third-party consultation techniques to improve documents.

At Hellmuth Obata & Kassabaum Inc., St. Louis, the number of claims has "been fairly stable" over the past 10 years, says Mary Ann Lazarus, director of design resources. She speculates that claims haven't dropped because HOK, one of the largest U.S. firms, may be "perceived as having deep pockets. So we get a lot of lawsuits filed against us. . . . We can't ignore them even though they might be frivolous."

Practicing litigation avoidance

One risk-management tool is communication. DPIC's Gleason says that "architects are disciplining themselves to be more effective in . . . the human-relations side of the job—their interfacing with their clients." Some firms are joining "partnering" teams at the outset of projects to build trust and head off disputes with owners and contractors. When a dispute can't be avoided, firms are turning to methods such as mediation and arbitratio instead of going to court. "There's a lot mor common sense," adds DPIC's Gleason. Mor over, "Owners are getting savvier and realiz you can work things out more peacefully," says Schinnerer's Abramowitz.

One way to avoid claims is to establish a tea attitude, through partnering with owners a contractors on projects. In fact, in June 199 the U.S. General Services Administration began requiring partnering on all projects exceeding $10 million, says former Deputy Administrator Julia M. Stasch. Team members set goals, such as having no litigation, and sometimes sign formal partnering "cha ters." Among risk-management tools, "Partnering has been a great one," says RTKL's Adams. For example, on the $104-million National Maritime Intelligence Center, in Suitland, Md., RTKL was part o joint venture with Daniel, Mann, Johnson, Mendenhall and HOK, which partnered wit the owner and contractor. Completed in 19 "It was near claims-free," says Adams.

Schinnerer's Genecki says partnering "has yet gained universal appeal among archite but I think it's slowly getting there." He se it as "most effective on larger projects." While partnering makes dispute resolution central to project administration, not ever one sees it the same way. "Somebody may come out and say, 'Oh, let's partner,' meani 'Let me take advantage of you,' " says AIA Clark. "You have to go into partnering wit clear understanding of what it really is." H warns parties to examine agreements carefully, looking for contract clauses that enta uncompensated work or risk shifting.

At Ellerbe Becket, top managers meet quarterly to discuss risk-related issues. "V encourage people to communicate early" i a project's life, says Green. The firm also carries a "fairly high deductible" on its liability insurance, which "puts the first dolla right out of our own pocket so that there i cost to letting things get out of control." T firm includes a clause in contracts limiting liability to its fee or amount of insurance c erage. But at The Kling Lindquist Partnership, Philadelphia, "We've never b successful nor have we tried to put a limit tion-of-liability clause in any of our work," *bility claims are way down, due in large part to aggressive risk nagement. The search goes on, however, for the best alternative to rt and for ways to combat the litigious client.*

Mel J. Sotnick, president and chief utive officer. The firm works for large orate and government customers, and if ed to insert such contract language, ents will blow us off," Sotnick says. "If re going to play in that ballpark, you nt to take responsibility for your actions," ick believes.

vices to avoid?

e firms simply stay away from certain s of projects. Condominiums can be a icular source of claims, for example. "We t do 'em for that reason," says RTKL's ms. AIA's Clark says, "It's not neces- y a building type," that's more likely to erate disputes. "It's more a client type."

dominiums can be contentious because are "a committee client, which changes ng the course of design and construc- " explains Clark. The initial client is a eloper, but the end-user and ultimate ers are a group of condo residents. "If a eloper has cut any corners, they stick out a sore thumb," he say. Buyers seek ages from the architect, who may have shut out of construction-phase services. er types of committee clients are school rds and church groups. Problems may e when key players change over the se of a project through parish council or ol board elections, Clark notes.

spurning projects on the basis of claims can be problematic. When architects an to turn away from asbestos abate- t—admittedly encouraged by rers—Clark says they "reduced their sures" to risk but also their workload. ey say, 'Oh, geez, we did it to ourselves . . l guess what—we don't have any fees.' "

er professionals, such as industrial enists and abatement contractors, found could successfully work directly with its, reducing the value of the architect's dinating role. Now, Clark says architects providing a broad range of services, ıding design/build, construction manage- t, and incidental pollution remediation.

liation: alternate-dispute "darling"

etimes claims can't be avoided. But they t have to escalate to full-blown court-

Will Tort Reform Help Architects?

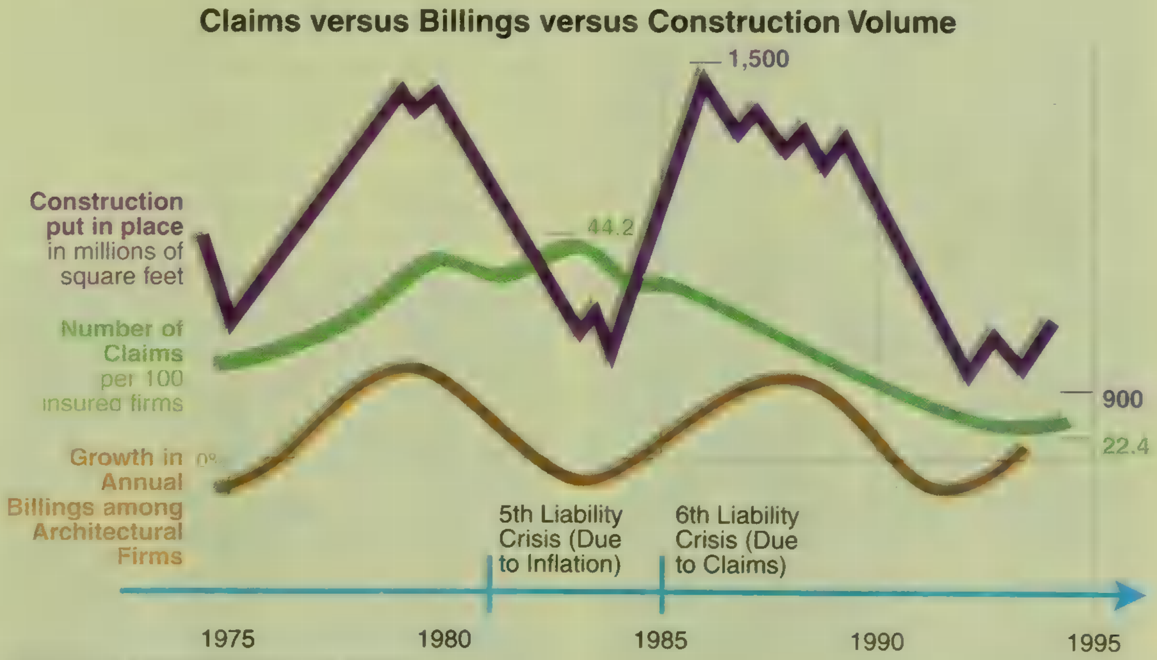
It doesn't look like Congress will provide liability relief for design firms this year. In March, the House passed three legal-reform measures, including a bill that among other things would limit joint and several liability for architects, engineers, and others in the service industries. Under joint and several liability, if there are multiple defendants on the losing side in a lawsuit and all but one go bankrupt or cannot pay, the remaining defendant is stuck with the entire cost of the award. The House measure would limit the non-economic damages to a party's "share of fault." It also caps punitive damages at three times compensatory damages, or $250,000, whichever is more.

When the Senate took up the issue in May, it only passed a bill dealing with liability for products, not services, and it had no provision curbing joint and several liability. The next step would be a conference committee to work out the differences between the House and Senate legislation. As of mid-June, the matter seemed on hold. Conferees hadn't even been named. Is the legislation dead? "I don't think it is," says a House staffer, "but it depends on whose rumor you listen to."

"In a way, this long wait could be very good," says Alexandra Brkic, legislative assistant for federal legislative affairs at the American Institute of Architects. House Speaker Newt Gingrich (R-Ga.) may decide to hold off until 1996, and try to make it an election-year issue. Presumably, those against the legislation would be portrayed as allied with wealthy trial lawyers, says Jack Kalavritinos, assistant general counsel with the American Consulting Engineers Council.

A delay would give lobbyists for architects and engineers more time to try to build support for their cause and "give us more of a chance of getting a broader bill," says Brkic.

Although passage isn't likely in 1995, "We've come a long, long way" from the position a year ago, says Kalavritinos. If a House and Senate conference doesn't take place until next year's primary elections, he says, "I think all bets are off." *T.I.*



Claims versus Billings versus Construction Volume

Source: AIA, CNA/Schinnerer, F.W. Dodge

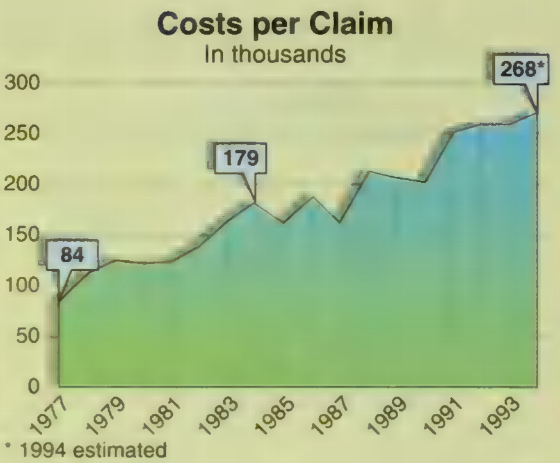
house battles. Firms have embraced various types of alternate dispute resolution (ADR) including mediation and arbitration. DPIC's Gleason says 30 percent of its insureds' pending claims are in some phase of ADR. As recently as early 1991, "it was 10 percent."

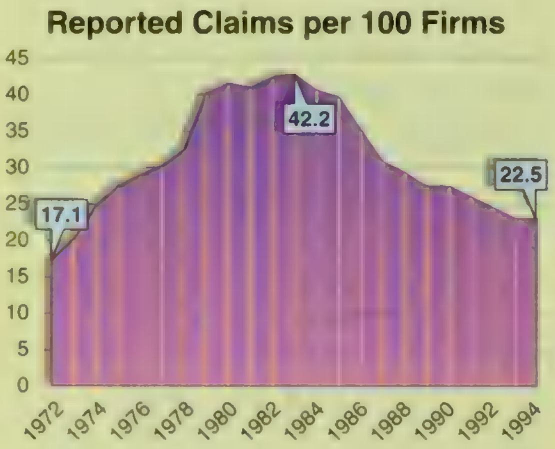
Among ADR techniques, "mediation has become the darling," says Schinnerer's Genecki. He says the technique is "quick, it keeps the parties in control of the process. . . and it doesn't need lawyers." He says mediation can cost $200 to $500 per day, while arbitration filing fees range from $500 for claims of $10,00 or less up to $5,000 for claims exceeding $1 million. There are also daily hearing fees. In addition, firms usually have legal counsel, which adds to costs. HOK includes standard language in its contracts spelling out that non-binding mediation be used if there is any controversy, says Lazarus. Sometimes, the language is removed through negotiations with clients. In addition, HOK contracts state that if mediation doesn't work, there would be arbitration for claims less than $75,000. James M. Stevenson, president of Perkins & Will, Chicago, says, "In general, we're very supportive of mediation and in fact are writing it into our contracts more now than we ever have in the past." He adds, "Mediation we see as a process which will keep client and architect and engineer together, [during and] beyond the resolution of the dispute."

"I think people got sick of the burden of paying for litigation," says Ellerbe Becket's Green. For example, a dispute arose on interior work related to a hospital expansion and renovation in Chicago. Ellerbe Becket's project manager and the client's in-house architect "became convinced of the rightness of their respective positions and absolutely would not move." Ellerbe Becket's project manager wanted to start litigation, says Green. The parties chose mediation. Some preparatory work was done, and after a day of mediation, the matter was resolved. "We paid what I think was a fair amount under the circumstances," he says.

[illegible] Court and arbitration

[illegible] disputants to avoid court. [illegible] DPIC offer incentives [illegible] says Schinnerer will give





Source: CNA/Schinnerer

The increasing cost per claim (top) remains troubling, even as aggressive risk management, according to insurers, has caused a huge drop in claims (above)

a firm a credit equal to half its deductible, up to a maximum of $15,000 per claim, if a dispute is settled through mediation. DPIC's plan is similar, but caps the credit at $12,500 per claim. Neither insurer has a similar incentive for arbitration.

Construction-related arbitration cases peaked at 5,440 in 1990, and declined to 4,094 in 1993 and 3,564 last year, says the American Arbitration Association, New York City. Arbitration cases brought by architects against owners have fallen from 266 in 1990 to 122 last year. Owner-versus-architect cases slipped from 153 to just 83 last year.

Arbitration is less in favor now. Once AIA standard-form agreements bound parties to arbitration. As they get revised, according to Dale Ellickson, senior director of the documents program, they now require parties to enter mediation before arbitration. Gleason says, "arbitration is too much like litigation It's an adversarial process. Someone sits as lord and executioner. . . ." RTKL's Adams says arbitration "seems to always end up being a 50-50 split even when it's not fair."

One Philadelphia architect, who asked not t be named, found out just how "arbitrary" arbitration can be. Sole proprietor of a fled ling firm, she stopped work on a house for a couple who stopped paying, and began pur ing a claim for the unpaid fees. The couple replied with a claim that the architect's failure to complete the work prevented the clients from receiving financing. They soug return of all paid fees and damages. The architect says she had asked the couple whether financial or other difficulties kept them from meeting their obligation, as the had expressed satisfaction with the work.

Since there had been no discussion or agre ment that fees were contingent on financin the architect felt she had a strong case for arbitration. The interior designer on the project had also been served with a simila suit, and the claims went to separate arbit tors. The designer won payment of her fee but the architect's arbitrator ruled for the couple. Not only was the extent of the awa financially devastating (the architect was insured), the rules applying at the arbitra tion, she says, "made it impossible to lear why I didn't win. Both parties have to agr to disclosure, and why should the winning side agree?" There is no appealing such a decision, but the architect was able to get damages reduced in court.

Partly in response to criticisms, an arbitr tion association task force issued in May a series of recommendations for improving construction-dispute system. They includ "fast track" plan for claims less than $50, and mandatory use of an association prog for large, more complicated claims.

The group also called for increased effort to encourage mediation, partnering, and dispute-review boards; it proposed requiring arbitrators to have at least 10 years' construction-industry experience. Arbitrator-attorneys also would be requi to have at least half of their practice in th construction industry. Architect William

her costs per claim may be attributable to "leaner, meaner" clients
replace project supervisors with risk-shifting contract language,
sue when inadequate budgets prevent completion.

er, principal of Reiner & Associates, San
el, Calif., was the task-force chairman.
ays that the recommendations are
ng to make the arbitration process much
r." Reiner doesn't see mediation as com-
ion for arbitration. "The success rate in
iation has been phenomenal." If it bene-
he industry, he says, "I'd rather see
gs get mediated before they go into arbi-
on." Not everyone thinks ADR is best in
y case. Kling Lindquist's Sotnick says,
had to choose how to face an unknown
at, I would prefer to use the law of the
."

leaner, meaner owner

all the liability trends are positive. The
age amount of claims at Schinnerer/CNA
from $179,000 in 1984 to an estimated
,000 in 1994 (chart, opposite). Sotnick
that in the past owners had a somewhat
giving attitude," but now he sees "a
rent kind of owner." Because of the
nsizing at many corporations, client rep-
ntatives fear being fired, he said. To
e their value, they're becoming "much
strident."

rbe Becket's Green says owners "ask for
-increasing broad coverage on insurance
indemnification clauses," which shift
responsibility to architects. He says
architects must firmly resist accepting
expansion of risk. Sotnick sees "signs
clients are hard pressed, have inade-
e budgets, and are using claims as a way
lping them to balance their budgets."

nnerer's Abramowitz says that 5 percent
wer claims go to court. But those that do
be long, hard fights. Among notable
nt cases, two have dealt with government
ects, including a courthouse in DuPage
nty, Ill., and O'Hare Airport's Interna-
l Terminal (right). Another dispute-
e project is Denver's new airport
ORD, November 1994, pages 30-37, 97].

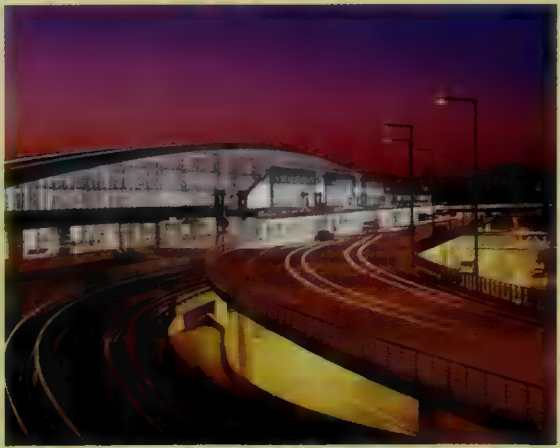
such prominent cases are rare. Schinner-
Abramowitz says, "I'm not saying that
truction is ever going to be un-tense.
e's a lot of money involved . . . and there
lways going to be problems. But I think
le are stepping up to those problems and
lling them more and more effectively." ■

Case Settled: When Communications Fail

In November 1993, Group One Design—an architect team that included Perkins & Will, Consoer Townsend & Associates, and Heard & Associates, Inc.—was sued by the city of Chicago over the International Terminal at O'Hare International Airport [RECORD, June 1994, pages 106-123]. The city contended designs for parts of the roof and important mechanical and life-safety systems were submitted late and required substantial redesign. The city sought to recover redesign costs and overtime for contractors who shortened their schedules to permit an on-time opening.

The team denies its work was substandard, says James M. Stevenson, of Perkins & Will, and even began preparing a countersuit, which was never filed. Instead the city and the design team negotiated and announced a settlement last January. The city received $9 million, paid by the project's insurer. The city paid the design team $1.9 million (a lower amount than sought) to settle the claims for fees and additional services, including retainage, says Stevenson of Perkins & Will.

"In our opinion, the claim was about process," says Stevenson. "There was never a total team effort on the project." He said the city was unwilling to try ADR, because it felt it held all the cards in the way its contracts were written. Was the firm happy with the settlement? "In many respects, we were," he says. But he adds that the legal process "should have been avoidable." *T.I.*



© Nick Merrick/Hedrich-Blessing

Looking to Appeal: Sick-Building Responsibility

Designed by HOK and Wight & Co., Downers Grove, Ill., a courthouse project for DuPage County, Ill., was completed in summer of 1991. The county contended that hundreds of people "experienced sick-building-type symptoms" within a month of occupying the courthouse. [HOK says the complaints came later.] When independent consultants found inadequate provision of outside air and a group of physicians couldn't certify the air quality, officials moved everyone out. The building was vacant from September 1992 to March 1993, when retrofit work was completed.

The county sued the architects and contractors for more than $5 million. Last December, a jury found the architects and contractors weren't at fault. According to HOK, the jury instead found the county negligent in operating and maintaining the building. In March, the county board voted to pursue an appeal, claiming the jury ignored "uncontroverted medical evidence" as to culpability, says DuPage's attorney. A separate suit by building occupants has been settled. *T.I.*

©Joh Miller/Hedrich-Blessing

When Should You Visit the Quarry?

The characteristics of natural stone are har
to judge from a briefcase-size sample.
Sometimes you need to go to the mountain.

By Richard Pieper

Almost invariably, the stone samples delivered to an architect's office carry a caveat which says: "This stone sample is a product of nature and is intended to show approximate color and texture. The sample does not necessarily show the full range of color variations to which such materials are subject. Stone furnished for projects should not be expected to match these samples exactly." The wording of the warning varies, of course, but the message is always the same: it is unwise to base selection or approval for a large or sensitive stone purchase on a few 12- by 12-in. samples. In many cases, a visit to the quarry or to the cutting and finishing plant that will process the quarry blocks is warranted to assure that the architect's needs and design intent are clear to the stone suppliers *before* the stone is shipped to a fabricator or to the job site.

Stone variation

Stone from different sections of the same quarry can vary greatly in appearance and composition. *Sandstones* are sedimentary stones which occur in layers or strata within the quarry. Strata may vary dramatically in thickness from several inches to several feet. Different strata in the same quarry may vary considerably in appearance, durability, and physical makeup. Generally, however, the variable coloration of sandstone is considered an innate aspect of its appearance, and is not considered objectionable. Joints—cracks or seams which occur naturally through the stone in the quarry—and the thickness of the stone strata or beds determine the size of the sandstone blocks that may be extracted. Bluestones, for instance, often occur in thin beds yielding 2- to 5-in.- thick stone appropriate for use in walls or paving. Not all sandstone quarries produce stone thick enough to be sawn for finished building stone.

Limestones and marbles also may show extraordinary variations in appearance. Even Indiana limestone, generally accepted as one of the most uniform of stone masonry materials, has distinct variations in color from [illegible] which govern its selection.

[illegible] is Director of Preservation [illegible] Architects in New

Marble is often so variable in appearance that consistency in coloration or figure is inconsistent with its selection. Variability in appearance is inherent in the material.

Granites are generally quarried from large granite masses, and many display very little variation in appearance. Granites are subject to texture and mineralogic variations, however. A relatively fine-grained granite may display localized coarsely crystalline veins, which are markedly different in texture than adjacent stone. Occasional small clots of dark minerals may show as a prominent spot in an otherwise light field. Rift, the alignment of the crystalline grains within the granite, may also significantly affect the appearance of the finished face of the stone, depending on the direction in which the stone is cut. Minor variations in color are common even in very regular granites. Some granite suppliers grade stone by subtle color variation, and market granite of different hues from the same or adjacent quarries under separate trade names. Tiles or small units from such suppliers are effectively pre-selected, and can exhibit extraordinary consistency in color and texture. Esthetic issues in granite selection are apt to be most sensitive if the granite is highly figured or wild. In such a case, careful selection of slabs or dimensional stone may be required to satisfy the architect's design intent.

Use and finish affects stone selection

Stone units that will be prominent in the finished installation require careful selection. Stone panels which might be satisfactory for curtain-wall installation on a higher floor may not be acceptable for use at street level. Stone for use in a lobby must be even more carefully selected. Architectural firms or construction managers often hire an inspector or consultant to assist with the selection of blocks and/or slabs for large curtain-wall projects where consistency of coloration is of paramount importance. Where extensive bookmatching or other pattern setting is elected, use of a consultant is also advisable.

Appearance selection criteria may be more or less stringent depending upon the finish the stone will receive. A tooled, honed, or flame-finished surface will display variations in color or texture much less readily than a polished surface. If possible, request that
samples reflecting typical stone variation b
presented in the specific finish that the
project requires.

Criteria for stone selection

Selection of a stone must be guided by its
appropriateness and durability for the pro
posed use, as well as by the ability of the
quarry to produce it in the sizes and amou
required—within the time period specified
Even granites and marbles that are availal
in large blocks are subject to size limitatio
Seams and cracks within the quarry signif
cantly affect the size and amount of stone
that can be used. At the Milbank, S. D., qu
ries of the Dakota Granite Company, for
instance, only 25 to 30 percent of the quar
stone yields useful blocks—nearly 70 perc
is waste. North Carolina Granite Corpora-
tion's 90-acre quarry in Mt. Airy, perhaps
the largest open-face quarry in the world,
notable for its absence of seams or beds
within the mass of the stone. Nearly 90
percent of the granite removed is usable.
Seams are of little concern if the stone uni
required are relatively small. But if a proj
requires numerous large panels for curtai
wall construction, the architect must be
assured that the quarry can provide block
adequate size on an appropriate schedule.

Visiting the quarry

Most quarry owners welcome visits by ar
tects because they offer a sales opportuni
and a chance to acquaint the architect wit
the quarrying process.

Arrange a visit through the stone supplie
through the quarry's regional sales repre
tative. Come prepared for mud underfoot
passing from quarry face to block storage
areas to cutting sheds. And make sure th
the sales representative understands the
purpose of the visit beforehand. Is this an
initial visit to become acquainted with the
quarry and its facilities, and the stone it p
duces, or is specific information about blo
sizes and production capability required?
one is visiting to select specific blocks of
stone, a quarry representative will accom
pany the tour to a block-storage area. Do
hesitate to express expectations or needs
figure and coloration. A bucket of water w
bring out the color of the stone in the rou

e-cut marble face at quarry
arrara, Italy (left). Marbles,
granites, are often quarried
large stone masses. Block
is limited by the distance
een seams and joints and by practical limitations of stone transport and cutting. Limestone slabs on a dolly at stone-cutting plant near Vicenza, Italy (right). Standard slab thicknesses in the U.S. are 3/4-in., mostly for interior use, and 1 1/4-in. for exterior and curtain-wall work. Roughly equivalent thicknesses of 2- and 3-cm are standard in Europe.

Photos by Richard Pieper

k, but viewing stone in block is tricky, and
ined eye is required to understand what
be exposed when the block is cut. After
gn requirements have been communi-
d, it is often advisable to allow the
icator or consultant to make the block
ction, and to select stone for sensitive
s after the blocks have been slabbed or
hly cut.

y granite and marble quarries have
plete cutting and finishing plants. Large
allations will generally have a gang saw,
h uses a series of parallel blades to cut a
k into slabs of equal thickness. Compa-
that operate several quarries may have
facility that cuts all the stone, so to view
s it may be necessary to visit a separate
ing and finishing facility rather than the
ry itself. Staff at the cutting facility may
ut several slabs to reflect the range of
e currently in production. If the project
ires a common size, such as 1-in.-thick
ls, a certain amount of culling may be
ible. Don't count on careful selection to
d variations in color or figure if the stone
herently varied. Accept the peculiarities
e stone or choose a different one.

stions for the stone supplier

iewing samples at the quarry, note how
correspond to the samples that were
to the office. Questions about variation in
e appearance are important. What textural variations appear in the stone? How does color vary? Are any small knots or localized mineralizations likely to occur that might be cut out or used in less visible locations? Will changes in rift or bed orientation vary the appearance of the finished stone units? If so, how much?

It's worth visiting a similar recently completed project that uses a stone being considered. The architect can see how the stone will appear in a similar application. The quarry or sales representative can provide a referral.

For a large or long-term project, a visit to the quarry is an opportunity to evaluate the quarry operation as well as the stone. Has the firm been in business a long time? What percentage of annual volume would this project represent? What period of time is necessary to produce the stone for this project? Are any other large projects slated to begin at about the same time? What lead time is generally necessary from receipt of order to delivery of stone? What types of cutting and finishing are performed at the quarry? What cutting and finishing plants are associated with the quarry, and are their production capabilities compatible with the project schedule? Are any changes in areas of quarry operation envisioned that would lead to a change in appearance of the stone? Is the same stone likely to be available for future building expansion?

Questions of stone durability and suitability for purpose must always be answered first, of course, but stone sales representatives generally recommend that a visit to the quarry or to the cutting and finishing facility take place as early as practicable in the selection process. It is of little use that a stone meets the architect's esthetic criteria if it is not available in the size required or on the necessary schedule. A visit to the quarry often puts stone selection into proper perspective, and reaffirms an understanding of stone as a natural and variable material of exceptional beauty and utility. ■

Additional information

The Building Stone Institute has just published a 32-page guide for architects: *Recommended Practices for the Use of Natural Stone in Construction.* Single copies are available without charge on letterhead request to The Building Stone Institute, PO Box 507, Purdys, N.Y. 10578.

Also, The Marble Institute of America, 33505 State St., Farmington, Mich. 48335 810/476-5558 publishes color-plate books with to-scale illustrations of granite, marble, limestone, and other natural stone from quarries all over the world.

Computer Myths Exploded

By Joseph Vance

"Computers degenerate the design process." "My designs are much too complex to accomplish on the computer." "You people working in the big cities on big projects can afford to do that kind of thing; we can't."

These are typical comments on the subject of designing with computers, encountered in articles, letters to the editor, and postings in various on-line services. One critic even suggested that the use of enhanced computer-generated images has contributed to the loss of the "moral center" of the profession. Why is this?

In large part the reason is quite simple. People always greatly fear what they do not understand. We have all seen computer technology make stunning changes—seemingly overnight—in other industries. Take the field of graphic design. Within the span of two years in the mid-1980s, mechanical paste-up artists became superfluous. Graphic designers were literally forced to either computerize or close up shop.

The changes so far in the architecture profession have occurred much more slowly. Nearly all firms are now using computers in their practice in one form or another. With the continual drop in the price of computer hardware and software, it has been relatively easy for most firms to adopt 2D CAD drafting. After all, drafting has always been a process of production, executed by employees. Incorporating the computer into the *design* process, however, has only happened in a small percentage of practices. The decision is not so simple as buying equipment and hiring a few CAD-proficient employees to operate it. Principals and senior staff must suddenly consider a change in the way they have worked for years. Most have no computer experience whatsoever; many are computerphobic.

Designing projects on the computer can be of [illegible] to a firm than simply automat[illegible] drafting process. For typical firms, [illegible] for 40 percent of the time and fee spent on a job, while construction documents are 35 percent. Still, architects always complain that there is never enough design time. The primary efficiency designing on the computer offers (and this means designing in 3D) is the ability to attach construction-related information to the design you've developed, rather than redrawing the design in a "working drawings" format.

Sophisticated modeling, rendering, and 3D design, you argue, is for the big or cutting-edge firm. Not so. It's true that the work of some firms pushes the envelope of available programs and computer power. Work that small firms do, even detail-driven custom residential, can benefit from the reasonably priced tools now available.

Working in 3D

"Ease of use" in the software you select is the key to successfully designing in 3D. Having to stop and think about how to do something or having to take several steps to complete a single function interferes with the natural flow of the design process. The best applications are defined as "solid modelers." For instance, to "draw" a 3D wall, you select a tool, enter the height of the wall, then simply "click and drag" or use the keyboard to enter the length of the wall. The result is a "real" wall, one that is solid with length, thickness, and height. Applications that are "surface modelers," on the other hand, usually require you to draw a 2D representation of the wall, select the lines, then select another function where the height of the wall is entered and the 2D lines "extruded" as 3D planes. These planes, however, have no thickness. Should you cut a section through your building and view it as a perspective section, you could see inside the walls, which is not the case with the solid modelers.

Applications that allow you to select items like doors and windows from a library, then place them with a single command are also better for designers than applications that require one command to cut the hole in the wall and another to place the door or window.

A wide range of features can automate a great deal of 3D-model creation. In some programs, 2D lines and curves in any imaginable configuration can be automatically converted to such elements as walls, floors, and ceilir Like 2D CAD, many applications allow yo multiply or drag and repeat 3D elements such as openings, doors, windows, and columns. Programs that allow you to easil manipulate the model in various 3D views greatly speed the process. For instance, y can place a pitched roof in plan, then switc to a 3D side elevation, "grab" the ridge of roof, and drag it down to the desired heigl

Myth: You can't "think" on screen

David Hannaford Mitchell is an architect New York City whose work consists mainl of custom single-family homes. Mitchell's five-person firm came to designing on the computer after seven years in business. H began in 1990, which proved a propitious moment, as the architectural recession hi New York hard and he suddenly found ma- taining staff and related overhead difficul Mitchell designed his first project on com- puter that year and has never looked bacl His workload quickly recovered to its pre- ous peak, only he discovered he could han it without assistants due to the efficiency his computer-based project execution. "M design process has always been a hybrid math and drawing," explains Mitchell. "Therefore I enjoy the specificity and immediate feedback of the computer mod combined with rapid exploration by freeh sketching over printed computer-generat perspectives [opposite]. I find [the compu actually enhances my thought process by allowing me to constantly flip back and fo between plan development and 3D develo- ment with a keyboard command."

Myth: you can't do detailed design

"A real problem with the traditional proc was the difficulty in really studying fine p portion in perspective," Mitchell commer "Even constructed perspectives were ra accurate enough for me to be entirely co- dent when making fine-tune decisions regarding trim size. Now, you can tweak piece of trim or other design element 1/4 and position yourself in the computer mo to look at that change and make real jud ments about it."

Similarly, Mitchell explains that he no lo has to wait for a hand drawing to be proc to evaluate his design decisions. His com

[illegible] his own New York City [illegible] chairman of New [illegible] Users Group.

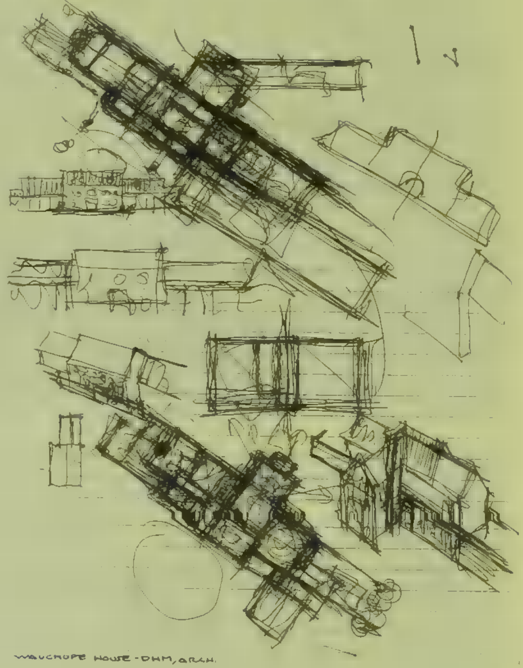
*Vhile many firms began with 2D CAD as a
productivity aid, the real benefits may only accrue
vhen architects design in 3D.*

r models allow him to see changes on the fly,
o that he can continue to investigate solu-
ions that need more attention. Mitchell feels
is time in front of the screen has not meant
ig changes in his design process, but has
mproved it. Once he might have shown
lients four or five formal, constructed per-
pectives. Now they may see as many as 150.
s a result, they are far more comfortable
hat they understand the design before con-
truction starts. According to Mitchell, the
hree biggest benefits he has seen from com-
uter-based design are, first, getting the
esign right; second, more thorough presen-
ation to the client; last: increased earnings.

Ayth: Proficiency takes years
Jew York architect Peter John Locascio
ought MiniCAD in early 1994, having had
nly a very brief introductory experience
vith CAD. By April, he had completed his
rst design on the computer, an entry for a
ow-income housing competition. In midsum-
ner of that year, he completed his first set of
onstruction documents, and in September,
igned a contract for a $1-million-plus project
or the New York City Housing Authority
vith a tight four-month schedule for design
hrough construction documents (following
ages). Even on a such a tight schedule,
ocascio felt quite comfortable that he was
ble to explore and develop the designs to his
atisfaction.

Ayth: Start with 2D first
'hough many architects, like Mitchell,
ecame comfortable with a computer because
supported working methods they were
sed to, most architects find their methods
hange and evolve as they better understand
'hat computers can do. Locascio has recent-
found himself using simple computer
odels in early design instead of cardboard
tudy models. When he "steps back" some
istance from the computer model, it read
ore abstractly. He can move around it,
iewing it as a whole and not just as an
ssemblage of detailed elements.

Iany architects stay with 2D because
ey perceive 3D as inefficient and difficult
master. In truth, the computer model can
dd considerable efficiency to the production
rocess because it literally becomes the
orking drawings. The typical design



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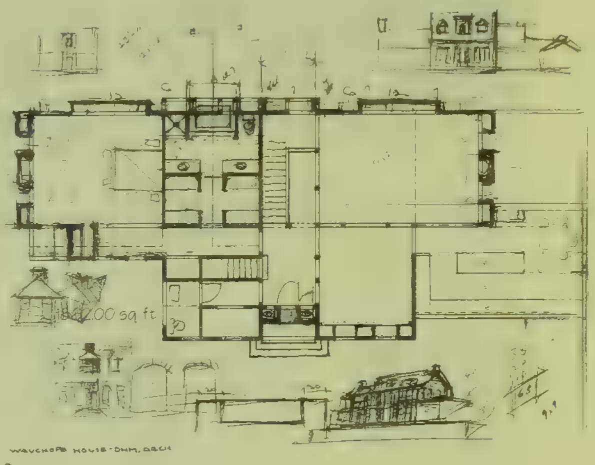

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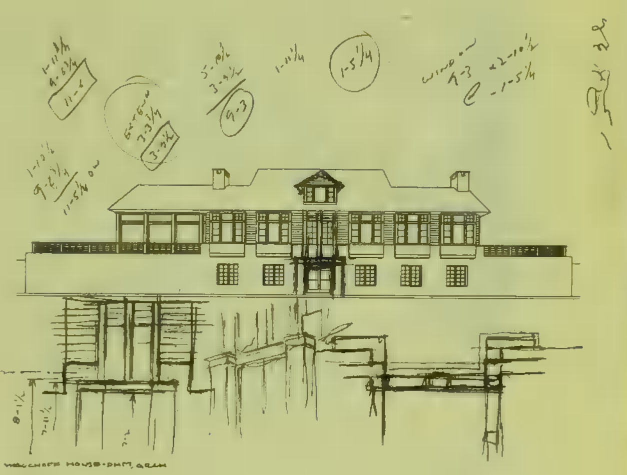

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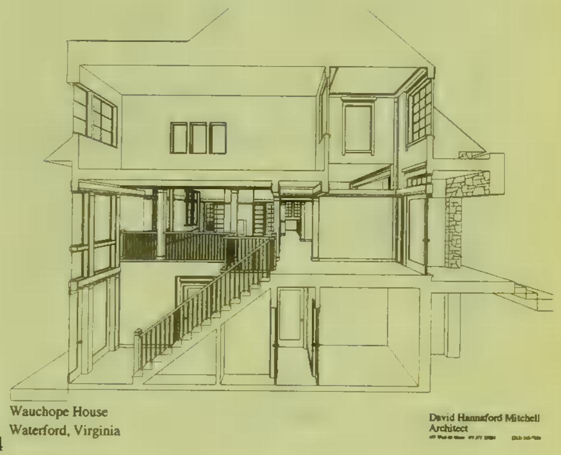

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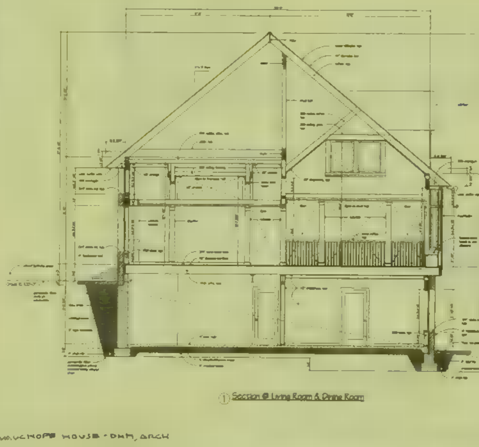
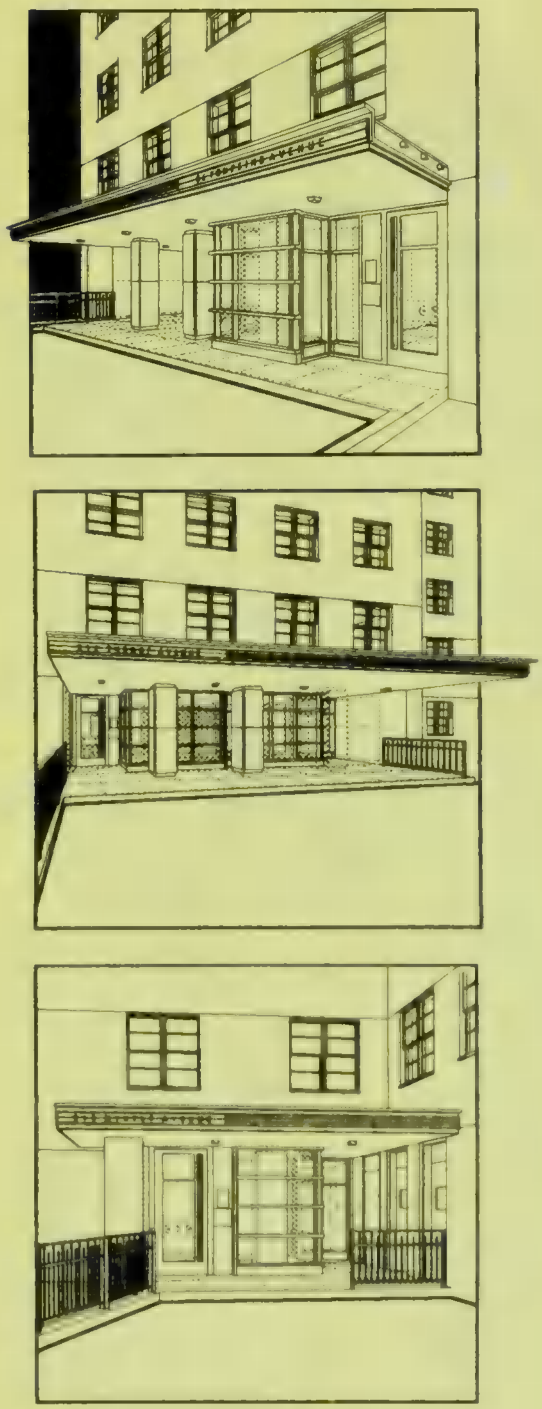
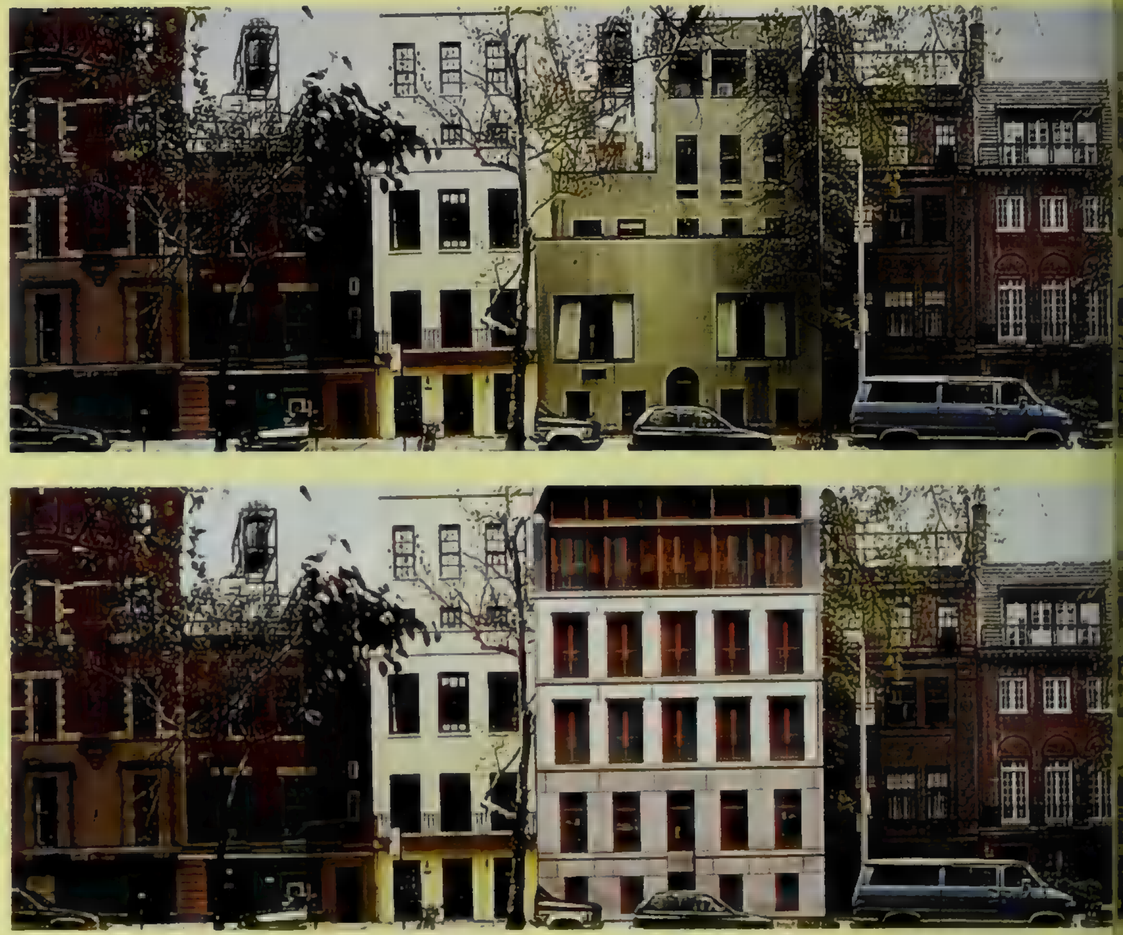

Section @ Living Room & Dining Room
WAUCHOPE HOUSE - DHM, ARCH

5

Sketching on screen and off: *Before David Mitchell designed on his computer, he would have made three or four formal constructed perspectives in addition to his own continual series of freehand perspective explorations. By hand, the formal perspectives would take him 7 hours to construct, an employee 1 1/2 to 2 days. Today, he may print out as many as 1,000 images (1, 2, 3), sketching directly over these with pencil for some design studies, making other changes directly on screen (4). Notations transform the model into working drawings (5).*



Engaging the client: *John Locascio was able to explore and develop designs for five different building entry and canopy combinations for the New York City Housing Authority on a tight four-month schedule. The clients, staff architects, commented that consultants rarely gave such clear and detailed presentations.*



Rendering history: *In a townhouse project, Kiss + Zwigard proposed a facade aligned to the street wall of neighboring buildings, permitti the creation of sun porches betw the new elevations and the exist set-back elevation. Numerous studies (left) attempted to mesh client and Landmark Commiss desires. Assuming the Commission would be more receptive to hand-rendered imag Kiss presented one at the initial hearing. When the board questioned whether he had accurately depicted the effects the glass, Kiss simply printed h design images on a high-quality printer. The Commission found these images more believable.*

ocess produces masses of yellow trace and
es of study models, very little of which can
incorporated into the final documents
thout redrawing. Inexperienced staff
embers pursuing false design trails quickly
nsume the budget. 2D CAD streamlines
ings only minimally.

ose who design on computer say they
end no more time during the design pro-
ss than they normally would, yet report
20- to 30-percent reduction in the time it
kes to produce construction documents
sed on the 3D model. Both Mitchell and
ocascio have learned to use the 3D design
odel as the basis for their construction doc-
ments, extracting 2D representations, to
hich are added dimensions, notes, pattern
s, and so on. The equivalent of the base or
tline drawing of every plan, section, and
evation is already complete at the start of
e construction-documents phase. And since
all know the design process doesn't neatly
d with the completion of design develop-
ent, the designer can make late changes in
e model—such as moving a wall or
ndow—and they will be reflected in all
ner major drawings.

productivity enhancements

hile macros (mini-programs users create to
ecute repetitive tasks) are commonly used
2D, applications permit a more sophisti-
ed version in 3D. A great deal of the work
Lalire March Architects, New York City,
he design of retail stores for chains like
ach, J. Crew, Liz Claiborne, and others.
e number of repetitive elements within
ch designs allowed the firm to use Graphi-
t's ArchiCAD, to "decide" some aspects of
ch design presentation and construction-
cument coordination.

e "objects" used in ArchiCAD, (referred to
symbols in other programs), are actually
s of computer code that users can delve
o if they are so inclined. With no prior pro-
amming experience, James Kotronis of
lire March developed custom objects.
essing rooms, for instance, always have
same components, but the size will
nge from store to store. At Lalire March,
esigner selects a custom dressing-room
ect from the library and places it on the
or plan, using two mouse clicks to define
the overall size. The object automatically locates the mirror, based on parameters embedded into it, placing it in a pre-established relationship to the door. The object also includes algorithms for locating ceiling light fixtures, wall sconces, an hvac diffuser, and a sprinkler head. Further, items are placed using the correct symbol for each drawing layer: architectural lighting symbols change to electrical ones on the lighting plan. Just prior to plotting, for example, a designer can move a dressing-room mirror that has a light fixture associated with it, because the lighting, hvac, and power plans are promptly updated automatically.

Lalire March uses a similar approach to streamline presentation drawing. One problem that can arise with computer-generated line-drawing perspectives is that the software insists on drawing every line. The drawing clogs where linework is dense. One of the firm's display-case objects, showing a rack of 30 jackets, reads well when viewed up close. To keep the image from being too dense in a perspective view of the whole room, Kotronis discovered that he could program his custom objects so that every time a perspective image was rendered, the display-case object could generate fewer lines, or generate the lines as dashed or dotted, depending on the viewpoint distance.

Though this sounds like gee-whiz stuff, partners Rex Lalire and Christopher March are not raving techno-heads. In fact, neither partner works directly on the computer. Says Lalire, "We certainly cannot say our design is better than before. However we can say good design can be accomplished more quickly." Efficiencies come in other ways. "Of course we still have the case where a staff member might take a wrong turn developing an aspect of the design," March says. "In the old days that might mean hours if not days of wasted time; it now probably means a matter of minutes."

Speed has also been an important benefit of designing on the computer for Laszlo Kiss of Kiss + Zwigard Architects, New York City. From an early effort in completing the design drawings for a competition encompassing an entire Berlin neighborhood, they've refined their technique to the point where dozens of facade schemes for a Manhattan townhouse renovation were developed in photorealistic detail and rendered in three to four weeks (opposite). Kiss says some design explorations would simply not have been possible without their computer. Since the site was within a historic district, the challenge was to create a design that would let in as much light as possible, yet be acceptable to the Landmarks Commission and the local Community Board.

Crucial in securing client approval was the ability to render images showing the quality of sunlight in the space and the view across the street. At the same time, Landmark Commission approval hinged on the size and proportion of openings—even the effects of reflectivity and shadow on the facades. The architects were able to sit at the computer screen and get a feeling for the ways each scheme combined apertures and layers of clear and translucent glass.

Presentation caveats

The fact that the Landmarks Commission found a computer drawing more credible than a conventional rendering doesn't mean that all computer presentation drawings are created equal. Kiss's firm's early presentation efforts with less sophisticated software were not successful with clients, he says, due to the "cartoony" quality of the images.

Clients may also find schematic and conceptual-level computer output troublesome. While the intent may be to show massing, a thought, or a direction, the client reads the hard-line perspective, and finds it uninspired, or thinks of it as *the* design solution. For these situations, it's worth using software that automatically renders the straight lines as "hand drawn." You don't do this to fool the client, but to display the image as a thought or work-in-progress, not "cast in stone."

While no one is saying you either have to jump on the bandwagon or get left behind, I know of too many firms who enjoy designing on the computer (including myself) to think the examples mentioned here are special or isolated cases. I think most would agree that any change in the way we work that allows us to spend more time designing and make more money is well worth considering. ■

A/E/C Systems 1995: Part I

Objects Take Center Stage

By Steven S. Ross

Software and hardware developers displaying their wares at A/E/C Systems this year offered ways to make Windows-based systems faster and more attractive. The advances include faster display processing, Windows-based printer/plotter drivers, Windows-based document tracking, and faster hardware.

New Macintosh, Unix-based and Windows NT systems were also in evidence. Digital showed new, fast versions of its Alpha chip for Windows NT. The fastest units are triple the speed of the fastest Pentiums.
300 *on Reader Service Card*

IBM showed its new PowerPC chip RS/6000 series for its version of Unix, AIX. Versions of Windows NT and OS/2 Warp are also promised for it.
301 *on Reader Service Card*

Intergraph and others showed computers based on up to four Pentium processors.
302 *on Reader Service Card*

Apple quietly talked about (but didn't show), its new PowerMac 9500 line, based on the new, faster 604 CPU.
303 *on Reader Service Card*

The CAD industry continued to consolidate. Softdesk, the largest developer of AutoCAD add-on software, acquired IdeaGraphix, the largest developer of MicroStation add-ons. Graphic Data Systems Corporation of Englewood, Colo., acquired the MicroGDS line from England's CADCORP.

The Object Wars

Autodesk and Bentley squared off at A/E/C Systems this year, promising more compatibility among their respective third-party add-on applications, and more insurance that files written with third-party applications present can be translated into other file formats. The actual situation falls somewhat short of the hype, however:

- Autodesk calls its initiative an open standard. But it has been developing it in secret; until A/E/C Systems, it was even discouraging its partners from having any contact with Bentley on other matters.

A/E/C Systems' Atlanta show drew over 20,000 exhibitors and attendees (left). Carol Bartz, Autodesk president (below left), promised a certification program to assure third-party compatibility of add-on software with AutoCAD Release 13.

© Steven S. Ross photos

- Bentley is offering an approach that offers better file compatibility, but has some downsides; also, it is somewhat vague on details.

What's going on? CAD is moving from simply putting lines into a drawing, to giving those lines some intelligence. Two parallel lines could be a wall, a pipe, a duct. A collection of lines could be a window or door assembly. In short, a collection of these lines (and, usually, underlying data) can be "objects."

There are great advantages to this approach. A door object, for instance, could cut its own hole in the wall, check for sufficient fire rating, and associate itself with a light switch—always on the side of the door that opens—and proper studding.

Buddy Cleveland, president of Jacobus Technology, says, "I'm convinced that object technologies are going to be in our future. But we need sensible implementation. Standards are needed, but they're not everything." Jacobus is more closely allied with Bentley than Autodesk.

But if you add this "object-based intellige to your drawing, where, exactly, does the intelligence reside? Many developers of th party software that works with AutoCAD Bentley MicroStation want to put the inte gence in separate pieces of software that exist apart from your drawings.

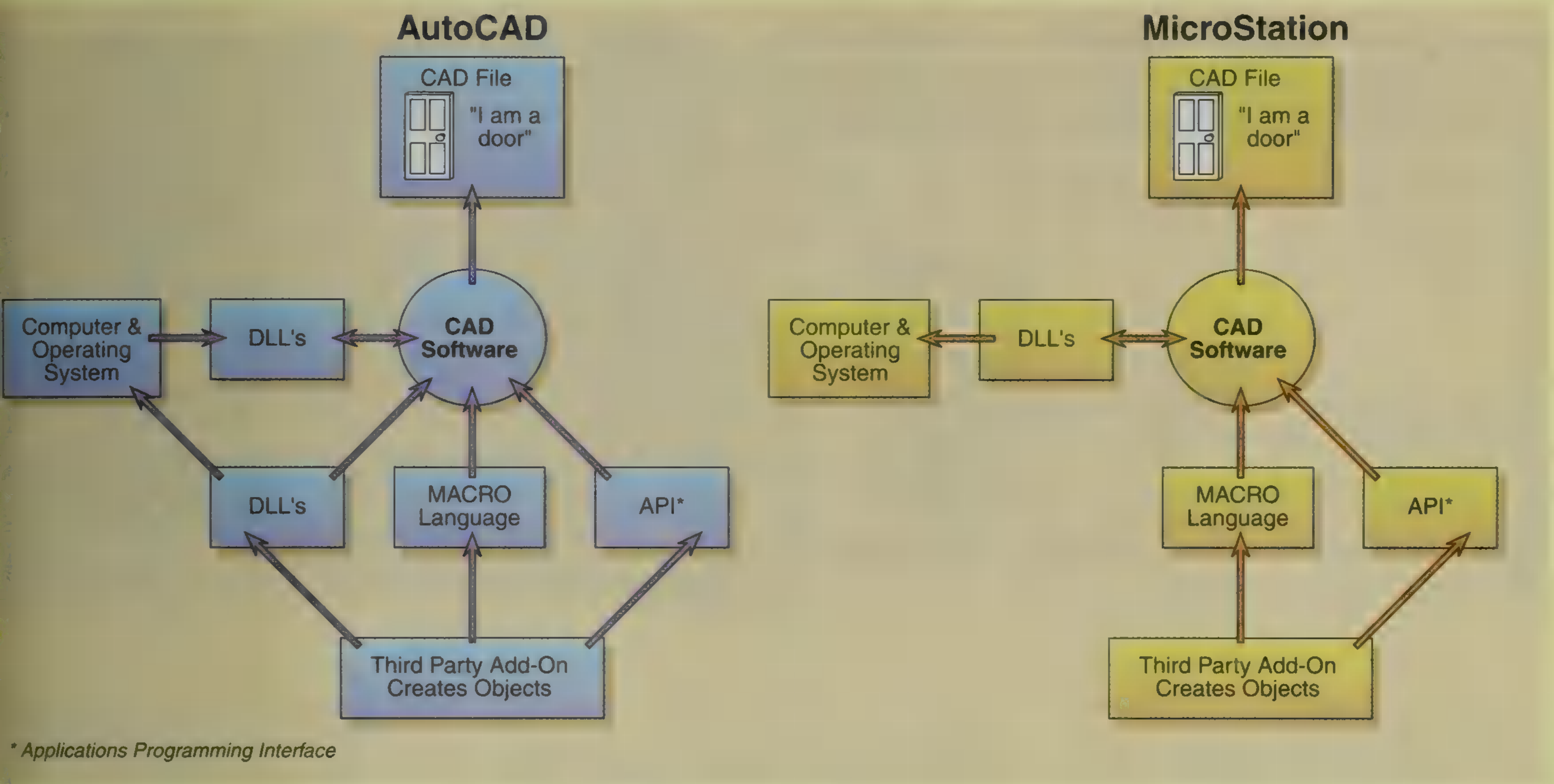
In general, third-party developers want these separate pieces of software to be in form of DLLs—dynamic link libraries—t "help" a CAD engine such as AutoCAD o MicroStation create and interpret drawin But unless you have the third-party devel er's DLL, large pieces of your drawing w lack intelligence—and may not even be visible.

Autodesk's standardization effort is aime setting a minimum level of intelligence fo each of about 150 objects by this fall. In t words of programmers, this minimum lev called an "industry foundation class," and there's one industry foundation class for object type—one for doors, one for doubl hung windows, and so forth.

Toward this end, Autodesk recruited a sm number of parties for each group of objec of interest to a given profession. For arch ture, this came down to 11 organizations, only one architectural firm—Hellmuth, O & Kassabaum (HOK). There are some od ties. Third-party vendor Eagle Point, for instance, worked on the civil engineering objects, but not architecture. Softdesk di architecture.

Autodesk says this was necessary to mov quickly. Ian Howell, director of Autodesk A/E/C Market Group, says few architects any, have the programming skills necessa

*ere's a drive to give drawings more intelligence—and cure speed
blems plaguing high-end Windows-based and Macintosh systems.
t full system-to-system file compatibility may suffer.*



** Applications Programming Interface*

Autodesk and Bentley MicroStation differ in their ways of providing "intelligence." Bentley wants to do it all within its CAD software, with its "macro" language. If it works, there are advantages. Third-party developers will write their add-ons only once, to work on any of the 17 platforms for which Bentley's CAD is being groomed. And because the macros are isolated from the equipment and operating system, the drawings should be more readable over the years.

Autodesk developers are putting some intelligence in their own DLLs (dynamic link libraries)—separate programs that run alongside AutoCAD itself. They gain flexibility, but the DLLs must be rewritten for each operating system, and when operating systems are updated.

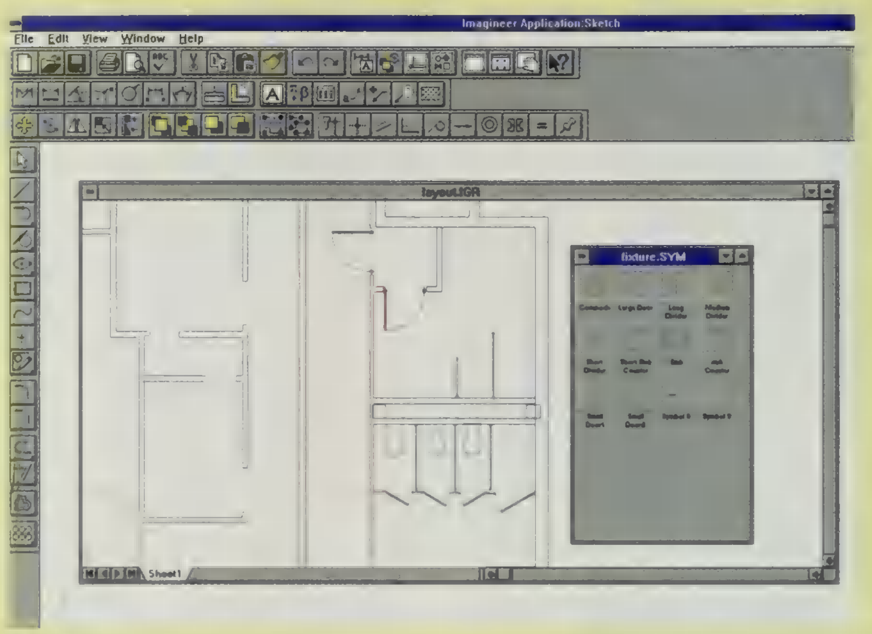
ontribute at this stage. At A/E/C tems, Autodesk encouraged Bentley other vendors to join its effort in a AEC eroperability Association. Also, it was ed that most of the foundation classes ected this fall are based on the STEP rt (a mainly European, 10-year-old rt aimed at standards for product data hange). Autodesk helped force the STEP rt to actually produce the standards, or eft behind.

ourse, it is to Autodesk's competitive antage to move as far as possible, while ping competitors as much in the dark as sible. It is also to Autodesk's advantage, he industry leader, to make its file struc- s as incompatible with competitors as sible. Finally, third-party vendors who ide add-ons would, all other things being al, wish to maximize their market by ng extra packages to end-users (perhaps ities managers) who want to view)-CAD files created with their add-ons— haps years earlier, by the architect.

r ARCHITECTURAL RECORD published broad outlines of all this in May, I heard third-party vendors (mainly in Europe, where the STEP effort has been sputtering along) who were upset at Autodesk basically "coercing" them into behaving "responsibly." This suggests Autodesk's strategy, although secretive, makes some sense. Howell denied hearing of any complaints about coercion.

An architect's best defense against all this is to know what he or she is buying. You must insist on assurances of maximum compatibility from any third-party vendor. A certification program for add-ons, run by AutoCAD for its vendors (and Bentley for its group), would go a long way toward helping architects make good choices. Autodesk president Carol Bartz says such a program is coming "soon," but refused to be specific. Bentley hasn't even gotten that far in its public pronouncements, but is insisting it will force all its vendors to include all intelligence in the drawing. Bentley has also announced full compliance with Microsoft OLE and CORBA standards, supposedly guaranteeing full data transfer via the Windows clipboard and "drag and drop" utilities.

Quite apart from the marketing issues, there are technical matters that have yet to be solved. Autodesk modified AutoCAD, with



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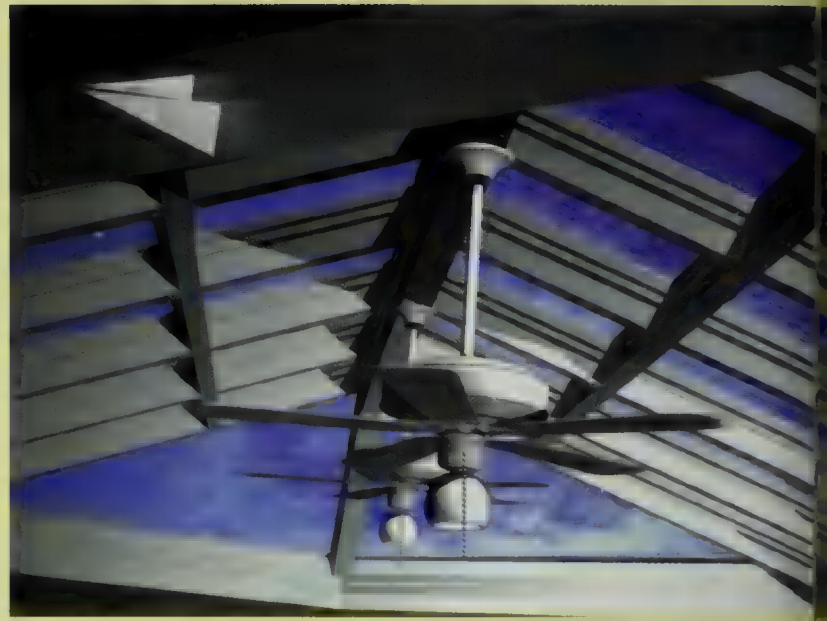

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Release 13, to allow third-party vendors to add their own objects as "entities" to AutoCAD files. More fine-tuning is necessary, but the object intelligence for the resulting DWG files can be in separate DLLs or in the drawing itself.

Bentley says it wants its third-party MicroStation developers to insert all of the intelligence possible into the drawing itself, rather than in DLLs. Toward that end, it is expanding MDL, the MicroStation Development Language, but does not expect full release until the end of 1996.

Computervision says it is adding object-oriented technology to its software (originally, VersaCad); the project is called "Pelorus." Intergraph is doing the same thing, apart from Bentley, with its Jupiter project (more about that later). RECORD plans to review Computervision's latest CAD product, DesignPost Drafting, soon.

Will an intelligent, object-filled drawing be easily translated from one type of CAD file to another, and from one operating system [illegible] Cleveland points out that DLLs [illegible] from operating system to [illegible] system—just recompile, usually.

[illegible] Cleveland. "If a third party vendor [illegible] some new library and goes [illegible] the DLL won't survive 20 generations of Windows NT."

Because the intelligence becomes part of the file and because Bentley makes its software available on Windows, Windows NT, Unix, and Macintosh (any in many variations of the four), the intelligence is available on all platforms, unlike Autodesk's. It is hard to see, however, how this file scheme can contain what will be an ever-increasing amount of object intelligence. One trick (easy with DLLs, harder with an in-drawing language) is to make sure the intelligence of, say, a door, is imparted to all doors in a drawing without having to be repeated for each one—even if more than one add-on package helped draw the doors.

More on Bentley vs Intergraph

Intergraph owns half the stock in Bentley Systems, developer of MicroStation. But this didn't keep Intergraph Software Solutions from showing a new 2D CAD package, Imagineer Technical, meant for Windows 95 or Windows NT. The final version is not expected until later this year.

Imagineer is not meant to replace a full-blown package such as MicroStation or AutoCAD. It can exchange files with them, however, and can convert rough sketches into polished drawings. Intergraph regards Imagineer as an example of its "Jupiter" technology, where standard software building-blocks are combined into functioning p grams that can exchange objects. It is bas on Microsoft's Component Object Model a Intergraph's robust Object Linking and Embedding for Design and Modeling, whi allows data exchange through the Window clipboard. Another difference between Bentley and Intergraph (its biggest stockholder and biggest dealer): Bentley is mov MicroStation to every platform—Macinto many Unix flavors, and anything that run Windows NT. Intergraph Jupiter appears be only a Windows NT/Windows 95 produ

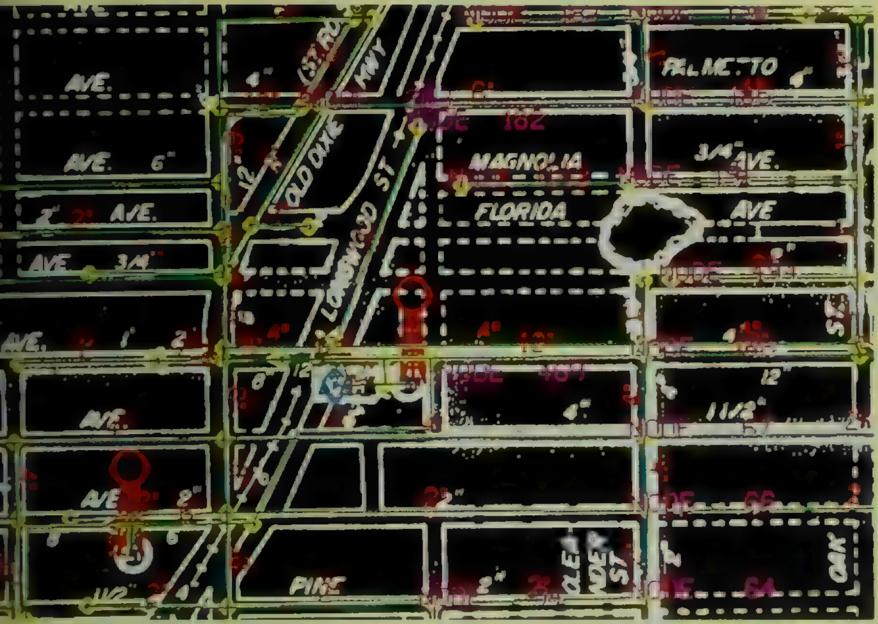
304 *on Reader Service Card*

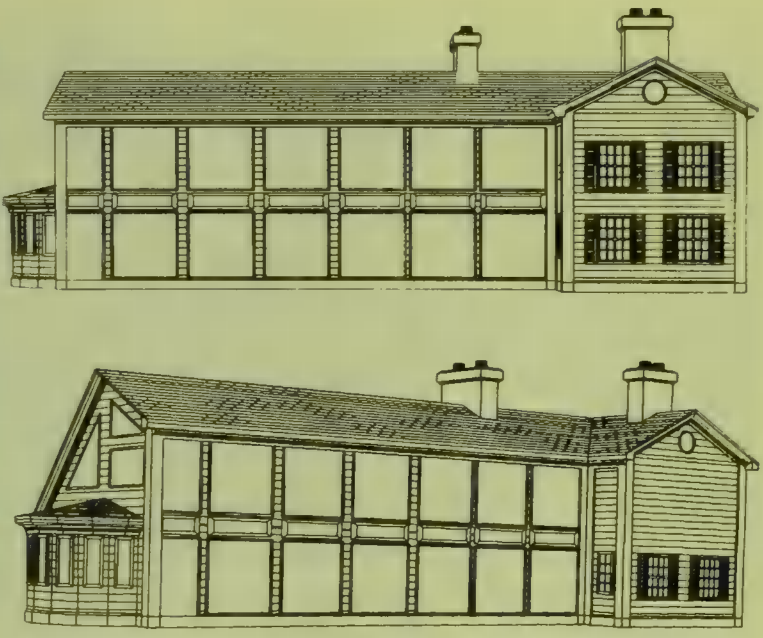
Intergraph has been selling MOGLE, a Windows graphics accelerator for AutoCA 13, since early spring. Vibrant Graphics introduced its Soft Engine for AutoCAD 1 for Windows just before the show (there w an earlier DOS version). It accelerates typical AutoCAD drawing functions by a factor of 2 to 10.

305 *on Reader Service Card*

Other CAD Software

Today's CAD packages come with so man goodies built-in that vendors would seem be hard-pressed to add more. Among the favorites, aside from the object-oriented approach of the big guys, is the ability to animations and photo-realistic rendering, better database links and—this amazed m speed and ease of actually drawing.





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e interesting (non-commercial) demon-
ation along ease-of-use lines came from a
dent group, The Multimedia Research
ject at Cal Poly State University's Dept.
Applied Art and Design.
6 *on Reader Service Card*

other is Archillustrator 4.0, a delight to
w with. Use it to create a 3D model from a
n view, drawn either inside the program or
ported. It is particularly strong in "brick
l stick" construction. The price is under
0. RECORD is planning a full review in an
oming issue.
7 *on Reader Service Card*

o-des-sys form-Z, in most ways the most
ible modeling software for the Macintosh,
be getting a Windows version; a prelimi-
y "alpha" was shown. Release is expected
this year. The company also announced
nderone, form-Z with advanced rendering,
uding photorealistic ray tracing. The ren-
ing engine is from Lightwork Design Ltd.
8 *on Reader Service Card*

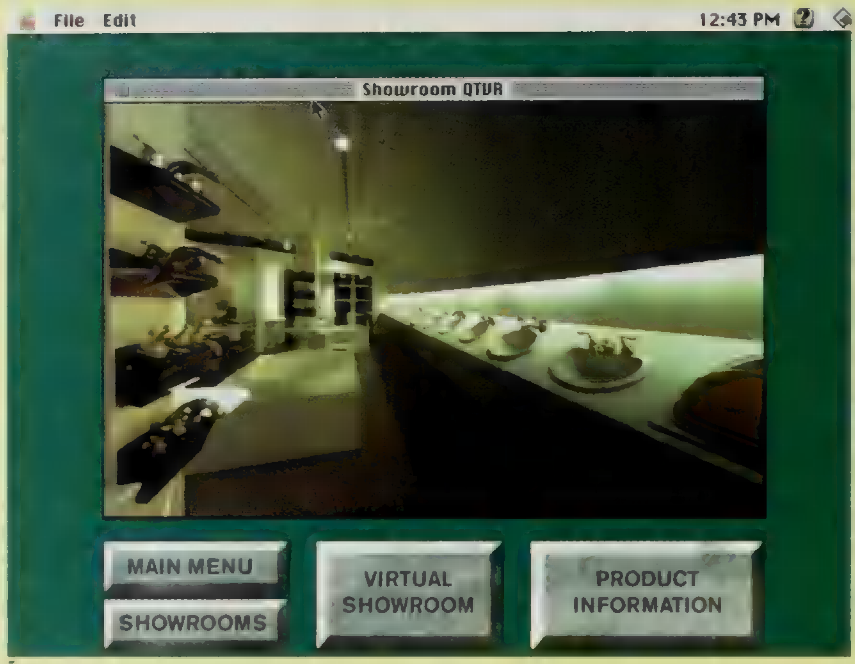
hitrion, which once held a major share of
Macintosh CAD market, came back
er its new owner—BAGH Technologies—
a new version, 6. Originally, this 2D/3D
kage had a flaw—its underlying database
integers in blocks. Thus, it was fast
portant for the Macintosh computers of a
years ago) but couldn't do sloping-roof
lines on the original database. The new version, which superimposes a second database on top of it, is expected to be out by this fall, in Mac and Windows versions.
309 *on Reader Service Card*

Cadkey, Inc., showed its top-of-the-line Cadkey product for Windows and Windows NT, but the excitement for architects is still around its $150 DataCAD product.
310 *on Reader Service Card*

Graphisoft showed its ArchiCAD with the ability to produce Quicktime VR animations. The VR Extension is available on all ArchiCAD platforms (Windows, Windows NT, Macintosh and Power Macintosh) but VR scenes must be created first on a Mac. Quicktime animations are extremely fast and compact; a full room rendered for all sides is typically 200K at quarter-screen resolution (320 by 240 pixels), so animations can be passed around on floppy disks. ArchiCAD 4.55 began shipping 4.55 for Windows NT on the Digital Alpha CPU last April.
311 *on Reader Service Card*

Graphsoft, the MiniCAD people, unveiled plans for a Windows version of MiniCAD 5.0, its full-featured CAD-and-database package, to be released later this year. It displayed Blueprint, its 2D drawing package, based on the 3D MiniCAD.
312 *on Reader Service Card*

1. Intergraph sees Imagineer Technical as an example of its Windows NT "Jupiter" technology, in which standard software building blocks are combined into functioning programs that can exchange objects.
2. Cal Poly State's Multimedia Research Project demonstrated its non-commercial imaging program as an easy-to-use drawing package.
3. Intergraph's transportation, site design, and coordinate-geometry products were on display.
4. Architectural Office, also by Intergraph, offers easy-to-use design and production tools to streamline design, layout, and presentation process.



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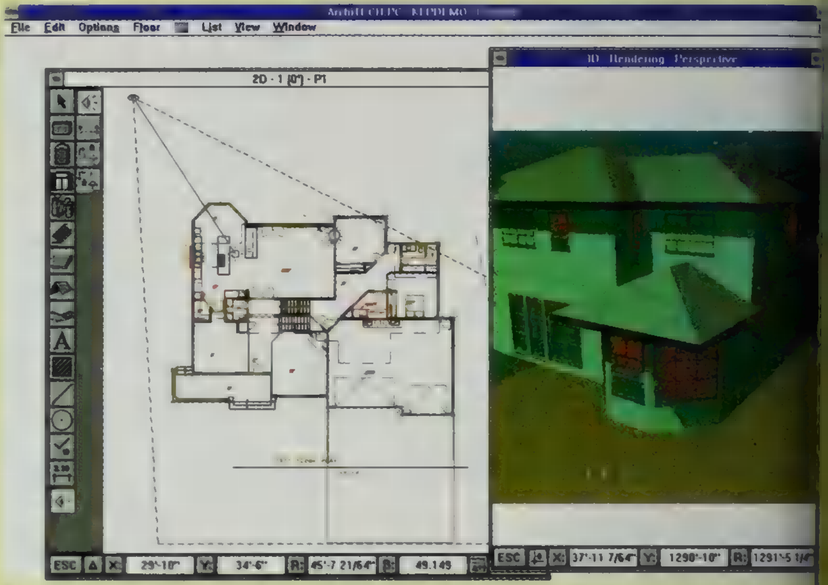


6

A year ago, IBM could manage only a one-person booth in the corner of the exhibit floor to display its A&ES Version 2.3 CAD software (available early September). This year, however, it mounted a major display, in conjunction with its push to sell RS/6000-series computers equipped with the PowerPC CPU chip and the AIX (Unix) operating system. A&ES is a full-featured package of CAD programs, originally developed in conjunction with SOM in Chicago. Bentley's drawing tools have been used to design and construct the 1996 Atlanta Olympics. Its database links are powerful enough to handle other tasks, including ticket sales.. This year, IBM added the ability to write and read AutoCAD DWG files (through the licensed Autodesk OEM engine) .
313 *on Reader Service Card*

Nemetschek showed its ALLPLAN, a drafting and modeling package used in Europe; it is said to be the top-selling CAD package in Germany. You can edit in 2D or 3D with it. [illegible] company hopes to sell it in North America as well. The American division is [illegible] CAD marketer [illegible]
[illegible] *on Reader Service Card*

[illegible] ArchiTECH PC, also [illegible] import, with an eight-year [illegible] many European CAD packages, it combines 2D drafting, 3D modeling, bill of materials, and advanced plotting.
315 *on Reader Service Card*

Visio, formerly Shapeware, showed its Visio Technical software. This package allows you to build drawings out of basic shapes as well as the normal CAD entities. It comes with symbols that "act smart." Stretching a desk symbol, for instance, does not make it wider. There's a 32-bit version due as soon as Windows 95 ships. RECORD expects to be reviewing this package soon.
316 *on Reader Service Card*

Xitron showed version 3.0 of its cheap ($495) but feature-laden XCAD drafting software; the package is already 32-bit and a Windows 95 version is promised for this coming month. There's a $99.95 Architects Toolbox for it from New Dimensions. RECORD will be reviewing XCAD in an upcoming issue.
317 *on Reader Service Card*

Third-Party Add-on Software

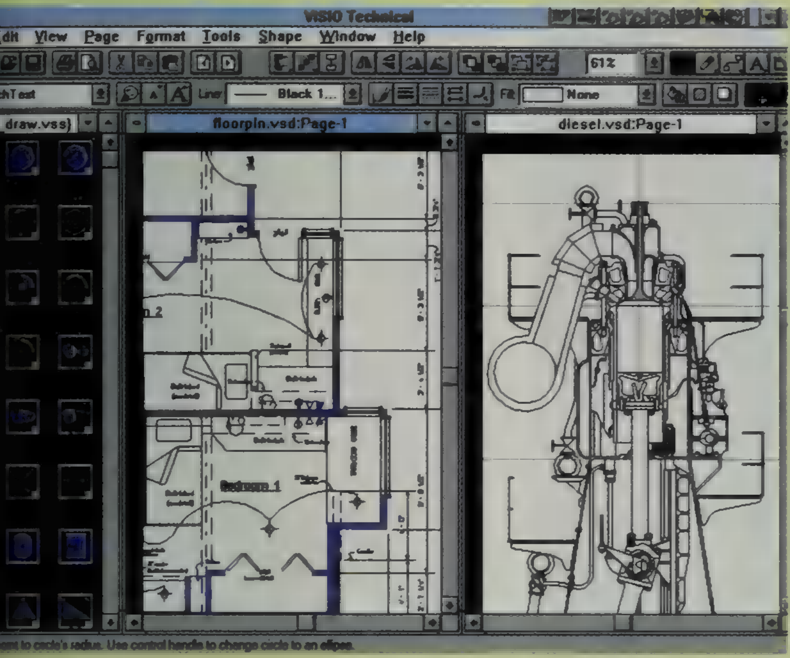
Most of the third-party action, of course, was linked to add-ons for AutoCAD and MicroStation. A popular add-on solution involves speeding up AutoCAD 13 graphics in Windows. But Autodesk itself announced WHIP, a three- to ten-fold speed-up as part of a free maintenance release due about as we went to press. It's based on the HOOPS technology Autodesk acquired a few years ago.

Perhaps the most clever and most generall useful add-on is not, strictly speaking, a drawing tool. It's ClickFlick, which allows you to add a customized tool palette to you cursor. Once you select a tool, the palette d appears until you complete the action. It works with any Windows software. RECOR plans to review it in more detail in an upco ing issue. The vendor is MiraTech.
318 *on Reader Service Card*

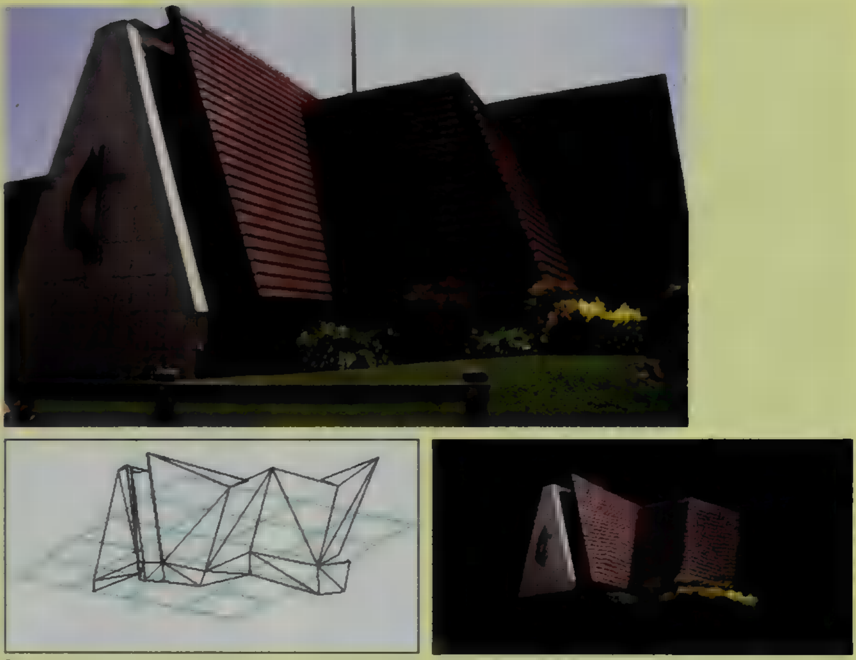
Cadsoft showed its APDesign, an example software that does lend "object intelligenc to AutoCAD drawings. It's meant mainly f the brick and stick market, and for paneliz construction. There's a new, more general CAD package as well, Build!; it was demor strated at the meeting. Build! is easy to dr with, and has drawing tools typical for the housing industry.
319 *on Reader Service Card*

Eagle Point Software announced new fina ing, and showed the latest of its AutoCAD add-ons for civil engineering and architecture.
320 *on Reader Service Card*

Lightscape Technologies showed its new radiosity-based visualization tools (which allows faster, photo-realistic 3D) with sup



ght to circle's radius. Use control handle to change circle to an ellipse.



8

'RML (Virtual Reality Modeling Lan-
e), more or less the standard for 3D
hics on the Internet. This allows well-
oped architects and clients to share a
through even if they are separated by
sands of miles. VRML browsers were
nally developed on SGI systems, and are
cted for Windows and Macintosh by fall.
1 *on Reader Service Card*

'IV Technologies released ARCHT for
CAD 13. This is a full-featured package
d at more animated architectural work
ORD expects to review it in the near
e), The firm is also cooperating with
erline; ARCHT has links to Timber-
estimating software.
on Reader Service Card for KETIV
on Reader Service Card for Timberline

and Machine showed several symbol
ries for AutoCAD and AutoCAD LT.
e are three separate libraries (internal
tecture, elevations and sections, and
views) for architecture specifically, and
or heating, plumbing and air condition-
chematics. The symbols, in native DWG
at, were developed in Germany.
on Reader Service Card

onics showed a suite of products for
ng photos or scanned images into wire-
3D images and animations. Take two
photos of a building, from two points, and Wireframe Express (formerly 3DExpres) turns them into a wireframe (you can apply bitmaps from the original images to fill in the wireframe surfaces with a separate QuickLook module); it exports via DXF to CAD. Express Mapper turns Wireframe Express files into 3D Studio files. 3D Maker takes two photos and turns them into a 3D image. We'll be reviewing Synthonics later this year.
325 *on Reader Service Card*

speedikon Software showed speedikon/M, an A/E/C-specific add-on for MicroStation. The company, a subsidiary of IEZ AG in Vienna, is now distributing speedikon in the U.S. . The package does conceptual modeling, hvac, even facilities management.
326 *on Reader Service Card*

Vibrant Graphics showed its new ToolKit for MicroStation 5.0, to create on-screen tool palettes and modify referenced drawings.
327 *on Reader Service Card*

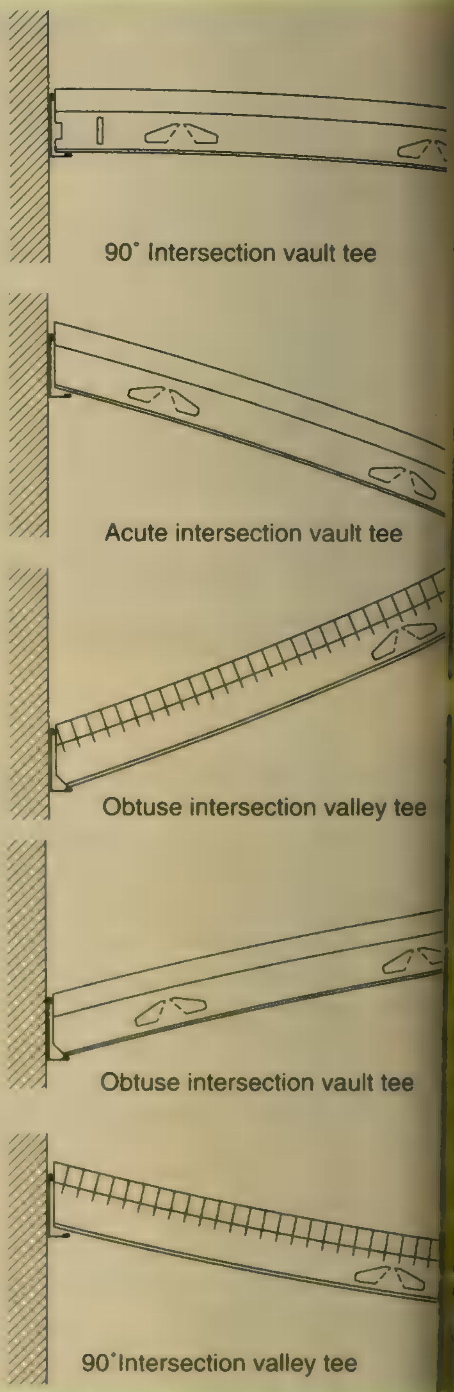
Part II of RECORD's coverage of the 1995 A/E/C Systems Show will appear in our September issue. Categories of software to be reviewed then: GIS; Facilities Management; Document Handling; Output Devices; Financial Management; Specification Writing; Digitizer Tablets; Digital Photo Documentation. SSR

5. Graphisoft showed its ArchiCAD that produces Quicktime virtual-reality animations. Note transparent quality and depth in lavatory image.
6. ArchiTECH PC by SoftCAD USA is an import from Germany with an engine combining 2D drafting, 3D modeling, advanced plotting, and bill of materials capabilities.
7. Visio Technical builds drawings out of basic shapes, plucking them from a palette and moving them to the drawing.
8. Synthonics turns photos or scanned images (top) into wireframe images (above left), then into 3D Studio files using two drawings of the building—the software converts them into a 3D image (above right).

Suspended-Grid Ceiling Works in Three Dimensions

1

2


90° Intersection vault tee
Acute intersection vault tee
Obtuse intersection valley tee
Obtuse intersection vault tee
90°Intersection valley tee

330. Ceiling kit-of-parts

USG Interiors has come up with a decorative ceiling option that allows for curves in three dimensions. Called Curvatura, the system twists and tweaks a standard suspended grid assembly into compound curves that resemble computer-generated topography.

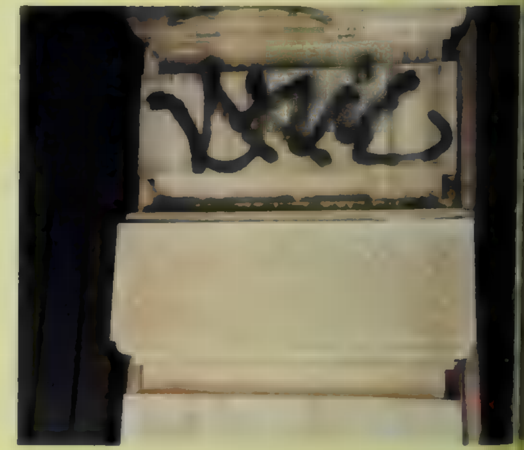
Designed to provide as many custom shape and size options as possible, the wave-like ceiling is made of a standard range of tee segments, wall-attachment clips, and infill panels. Vault, valley, and straight tees can start from the wall at different angles (see details) or not touch the wall at all. Grids carry 2- by 2-ft infill panels—flat sheets of perforated or plain metal, woven wire mesh, or translucent fiberglass-reinforced plastic—curved in the field to follow the undulations of each segment and fastened to the grid with hold-down tabs. Wrapped fiberglass batts can be placed behind the panels for spot noise control. Architect Walter Pancewicz, of The Aria Group in Oak Park, Ill., worked with the USG Product Design & Development team on the system's first commercial application, a California Pizza restaurant in Boston (opposite, 4), designing the assembly as artwork that gives interest and movement to the ceiling of a relatively small space. Curvatura design aids include tracings of given lengths, a template to create totally custom patterns from standard arcs, and an AutoCAD-compatible disk. 800/950-3839. USG Interiors, Chicago. ■

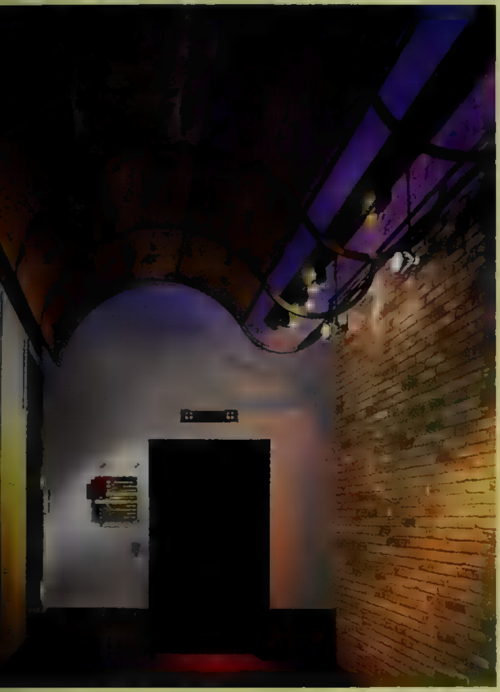
1. Valerio Dewalt Train Associates, Inc.
2. Tainer Associates, Ltd., Architect
3. Yetta Starr, Starr Design Associates
4. Aria Group, Architect

Careful Cure

331. Anti-graffiti protective coating

A two-part (sacrificial) system developed in New York City has proved effective in facilitating graffiti removal from vandal-prone structures such as the Brooklyn Bridge as well as sound barriers, where scrawls can't be treated quickly. Described as virtually invisible and less expensive than other sacrificial coatings, G-Pro permits graffiti removal with just pressurized hot water. It is said not to leave a residue or shadow on the surface after cleaning. 718/937-7740. Horn Restoration Corp., Long Island City, N.Y.





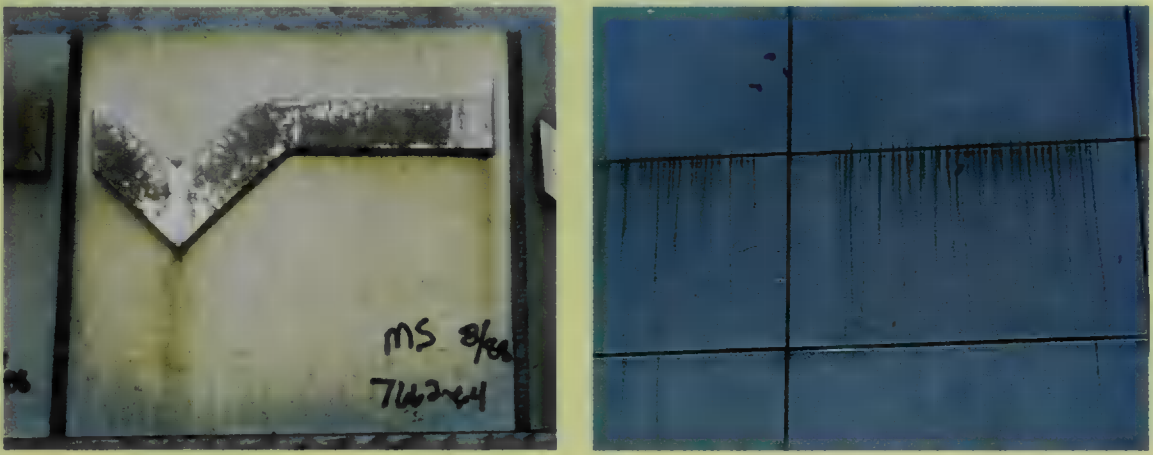
n considering anti-graffiti treatments, sure that the cúre isn't worse than the ise. Products appropriate for a dense trate may actually harm more porous such as brick, and the historic status of tructure itself may restrict product e. Select for these criteria:

meability—any coating must allow for r transmission from the substrate.

earance—shouldn't alter the gloss or en the color of the surface.

osure—should be little affected by hering and ultraviolet radiation. ■

Rewriting Murphy's Law of Dirt Pickup



332. Reformulated silicone sealants
Weatherproofing sealants are prone to chalking (left in photo above) and streaking (right) These and other performance problems have been addressed by a new elastomeric caulk introduced at the Construction Specification Institute show in June.

756 silicone is specifically designed for use with porous-stone and metal-panel claddings where esthetic considerations are important—and where fluid migration, soil runoff, and streaking are particularly noticeable. While chalking tends to be more of a problem with organic-based sealants (such as urethane) as they weather, streaking is more common with silicone compounds because of the cure rate and (low) surface hardness of the material.

Andreas Wolf, a research chemist with Dow Corning, has formulated Murphy's Law of Dirt Pickup: the more flexible and durable (tenuously adhering) the sealant, the higher the rate of dirt accumulation on the surface. The stiffer and less durable the sealant, the lower the dirt pickup. To create a high-performance sealant less prone to the streaking caused by dirt run-off, he tinkered with the surface tension of the silicone to create a low-energy condition that repels dirt from the exterior and keeps plasticizers from migrating through the surface to stain adjacent porous or micro-porous surfaces.

The new surface-modified sealant is a two-part silicone formulation that requires mixing prior to use. It is described as a medium-modulus product that can accommodate plus or minus 50 percent movement in a properly designed joint, and is said to be able to bond well with most building materials. It is not, however, intended for use in structural-glazing applications. Nor can it be used inside, as it needs both atmospheric moisture and exposure to UV to cure properly. Installation requires the usual surface preparation and priming as recommended for various substrates; 756 is compatible with several types of backer rods. Standard colors are white, limestone, gray, bronze, and black; custom colors are available on a special-order basis. Sealant may be painted within six months of installation, if desired.

Also new at the CSI show: 2001 Ultraclear, another silicone product with specific properties, has no color of its own and resists yellowing over time. A one-part formulation, Ultraclear is described as ideal for esthetically demanding applications such as glass butt, miter, and lap shear joints. When used between adjacent glass surfaces, it weatherseals without distorting window views, and gives an "all-glass" appearance to glass-block partitions and shower enclosures. It is compatible with most glass, acrylic, and polycarbonate glazing sheets. 800/346-9882. Dow Corning Corp., Midland, Mich. ■

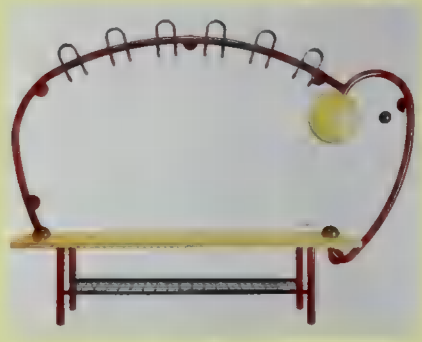
333. Hurricane-code glazing
Glass laminated with Saflex interlayer has passed all parts of the revised Miami-Dade wind-resistance test protocol, in framing configurations from several manufacturers, such as this high-rise window wall from Arch Aluminum. Laminated glass offers passive storm protection, and does not intrude on sight lines, view, or a building's exterior plane. 800/248-6844. Monsanto, St. Louis.

334. Rolling doors in color
Cornell's galvanized, stainless-steel, and aluminum service doors, fire doors, grilles, and closures are now available in 40 standard colors on a quick-ship basis. Doors meet a range of special needs, from fast-acting fire doors to light-tight shutters. A new technical binder offers architectural-design, detail, and specification help. 800/233-8366. Cornell Iron Works, Inc., Mountaintop, Pa.

335. Composite double-hungs
The Integrity window, made of wood on the inside with a structural exterior of Ultrex composite, now comes in a traditional double-hung configuration. An integral accent ledge on the check rail serves as a built-in sash lift; all interior components are paintable. Available in over 50 standard sizes, design permits multiple assemblies as shown. 800/346-5128. Marvin Windows, Warroad, Minn.

336. Expanded fire-glazing line
Pilkington's Pyrostop fire-rated, multiple-light glazing, laminated with transparent intumescent interlayers, is now available in North America. Offered in make-ups labeled for up to 120 minutes, Pyrostop meets radiant-heat transfer (fire wall) and safety-glazing requirements. Distributed in a joint effort with Libby Owens Ford. 800/426-0279. Technical Glass Products, Kirkland, Wash.

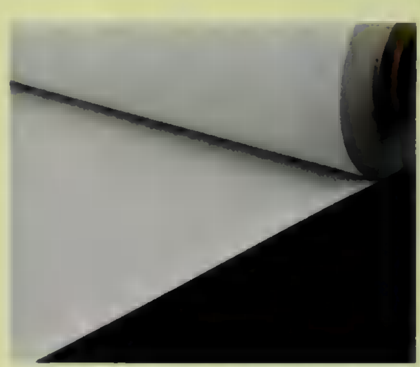
337. Special-shape masonry
New Monumental Series ground-face masonry units come in larger sizes (up to 16- by 24-in.) and architectural shapes, such as a water table (left), cornice and sill designs, keystone arch, curved column units, and slanted and chamfered-edge quoining units. Some sizes also offer a glazed-face option. 800/233-1924. Trenwyth Industries, Inc., Emigsville, Pa.



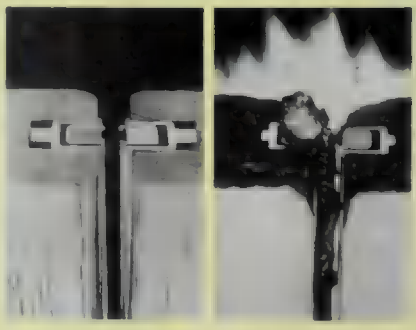
338. Childcare furnishings
Door and window hardware, washroom accessories, benches, and wardrobe specialities appropriate f nursery and kindergarten-age children are made using colorful, round-edged nylon-covered-steel components. The "elephant" (left) combines a wood bench with coat hooks on a curved railing. Options include picture holders and 13 colo 717/293-1313. HEWI, Lancaster, P

339. Wood retrofit windows
A new type of remodel window, the Precision Fit double-hung, comes with a full-perimeter frame, ready install within an existing opening without sacrificing the existing tri The sash pivots at the center for glass cleaning; narrow-profile fran and muntins maintain opening size Made-to-order with a wood interio and clad exterior. 800/84-PELLA. Pella Corp., Pella, Iowa.

340. Tongue-and-groove pan
Made in 4- by 8-ft plywood-backed panels, 2-in.-exposure narrow-bea (1/8-in.) pine resembles the planki used on Victorian-era porch ceilin Suggested for interior and shelter exterior use as wainscotting, ceilin walls, and cabinets, panels come sanded smooth and ready to paint stain, or varnish. Shiplap edge; A graded V-171. 800/BUILD-GP. Georgia-Pacific Corp., Atlanta.



341. Heat-welded gray roofi
Scrim-reinforced for tear- and pu ture-resistance, Hi-Tuff/EP single ply roofing membrane comes in a gray color, in addition to white an black. Roofing carries UL Class A rating for fire resistance, and mee FM I-90 wind-uplift requirements Edge metal and seam caulk availa to match. 800/621-7663. JPS Elastomerics Corp., Northampton, M



342. Life-safety door seals
A new pourable intumescent confi ration can withstand in-use impac applications such as meeting stile "Soft puff" material permits ope and resealing under fire conditio and protects occupants from flam heat, and smoke as per NFPA an other code standards. Systems ca retrofit; comes in gray, brown, an customized colors. 800/635-5335. International, Bronx, N.Y. ■

What should you expect from a computer today?

Michael Spindler, Apple's CEO, offered a glimpse at revolutionary tools for architects, engineers, and contractors at AEC Systems '95 in Atlanta.

be successful, you have to listen carefully to your clients.

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These tools take our high-performance, low-cost Apple® Power Macintosh® computers beyond traditional word processors and CAD packages to create dramatic new ways to get more work done in a day.

And while all computer companies promise to deliver revolutionary technologies at some time in "the future," our promises are a little different.

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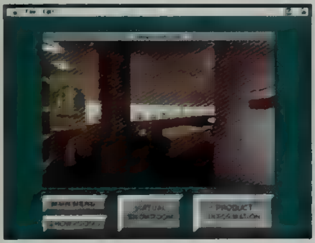
Interactive Media

ple pioneered visual rendering deas with the graphics-based cintosh. Today, architects, engi- rs, and contractors with Power cintosh computers are using ractive catalogs of products materials that deliver entire wrooms on CD-ROM discs.

These discs free catalogs and duct information from bulky ited volumes, allowing you to vely view building materials, ures, colors, and product cifications instantly.

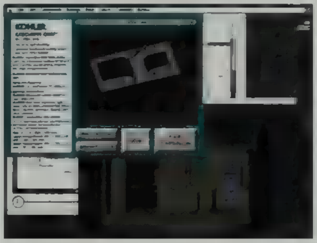
or example, to view a selec- of sinks with a client, you click on the building product ROM's Showrooms icon.



QuickTime VR

Imagine sitting at your desk and "walking" through a kitchen and bath showroom with your client. Such an interactive walk allows you to move around the showroom freely, so you can quickly focus on—and choose—products that are appropriate for your job and appeal to your client.

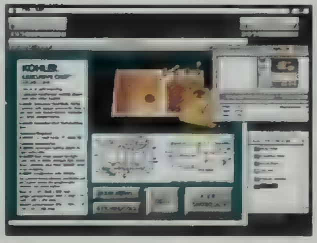
Apple QuickTime® VR (for virtual reality) is the technology that makes it easy to construct such virtual showrooms and provides a true, interactive alternative to preprogrammed fly-throughs.



QuickDraw 3D

Continuing our example, QuickDraw™ 3D technology allows you to select a specific 3D sink model, examine its specifications, and rotate its rendering to view it from any direction.

But the beauty of QuickDraw 3D is that you can take the chosen sink's 3D rendering and place it into a CAD document, a word processing document, or a page layout, and it retains all its 3D attributes, so you can still rotate it with just a click of the mouse.

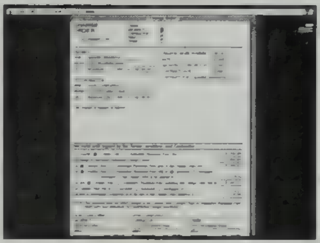


QuickTime Conferencing

Apple QuickTime Conferencing is designed to help people work together interactively on the same project—even from several remote sites.

Now you can bring clients, contractors, and engineers together using Power Macintosh computers, standard networks, and standard telephone lines for faster decision making and quicker incorporation of new ideas.

For instance, you can send the product information about the client's chosen sink to the contractor instantly, allowing her to make live revisions to project schedules and, of course, her estimates.



PowerTalk

Apple PowerTalk® technology allows you to obtain and verify electronic signatures on your change orders.

These electronic signatures are password codes that you, your client, and project team members use to securely sign documents. This eliminates mail and messenger delays and shortens the approval cycle.

In addition, PowerTalk automatically uses the most expedient method to deliver your document —via fax, interoffice e-mail, the Internet, or other on-line service.

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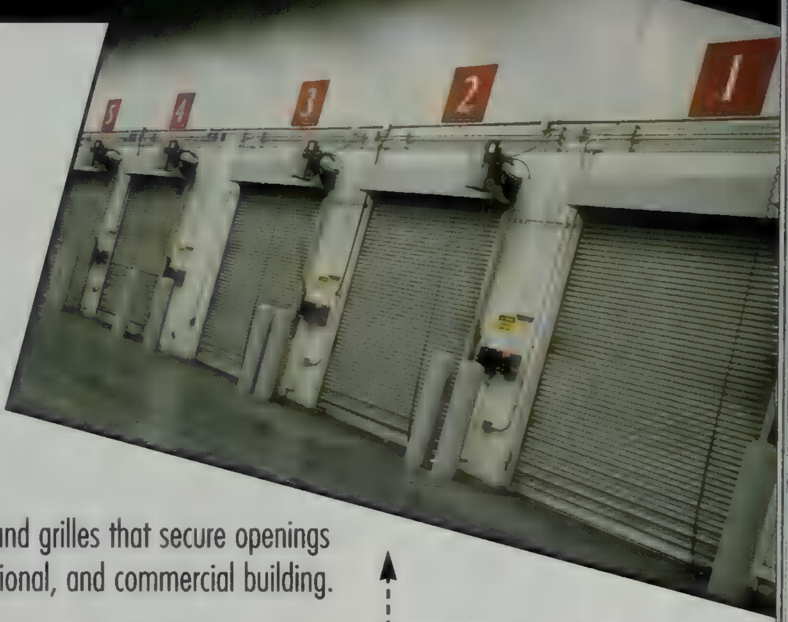

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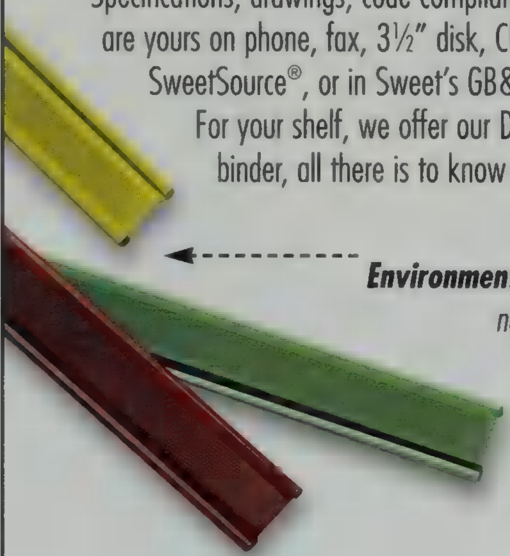

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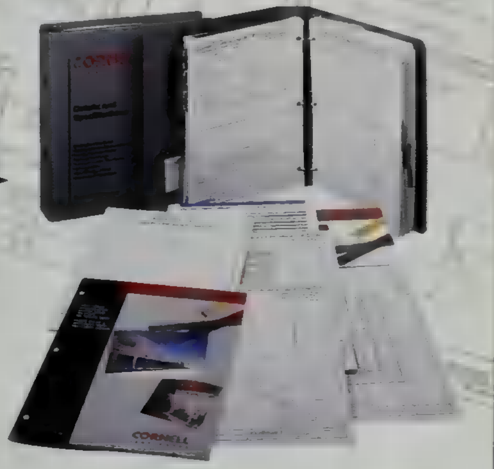

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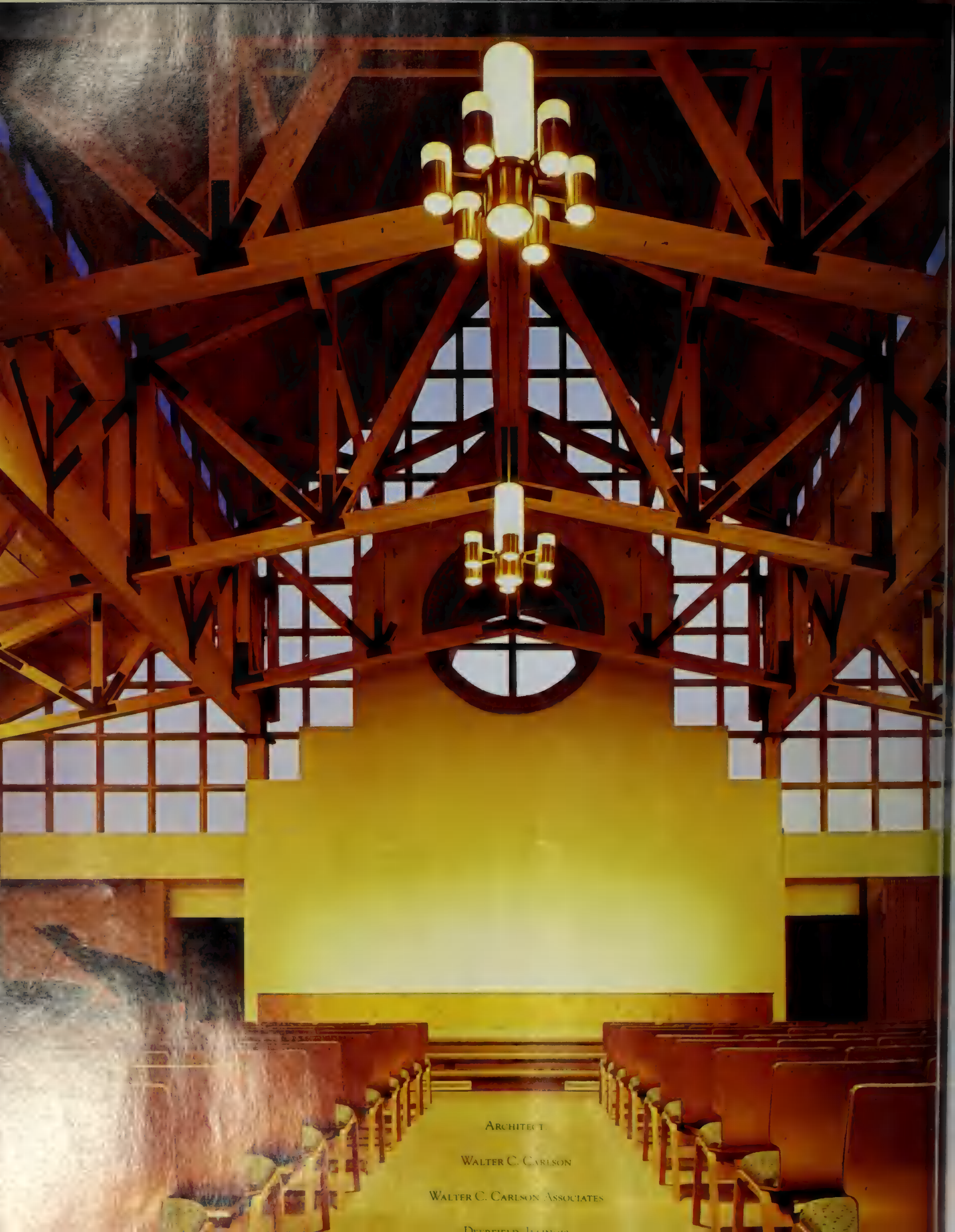

Architect

Walter C. Carlson

Walter C. Carlson Associates

Deerfield, Illinois

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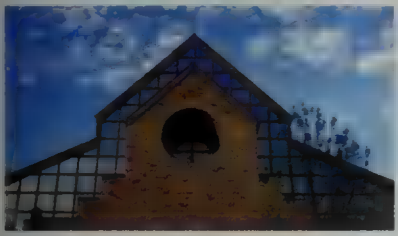

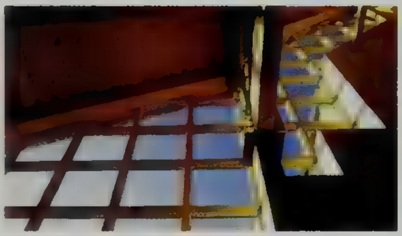

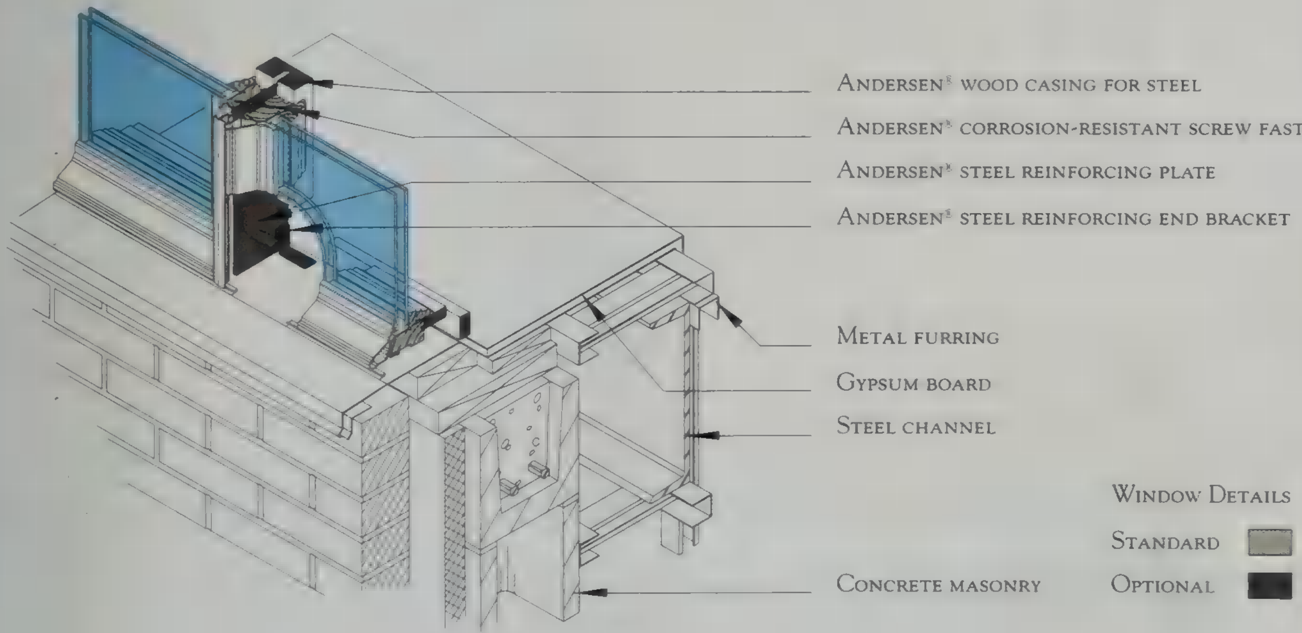
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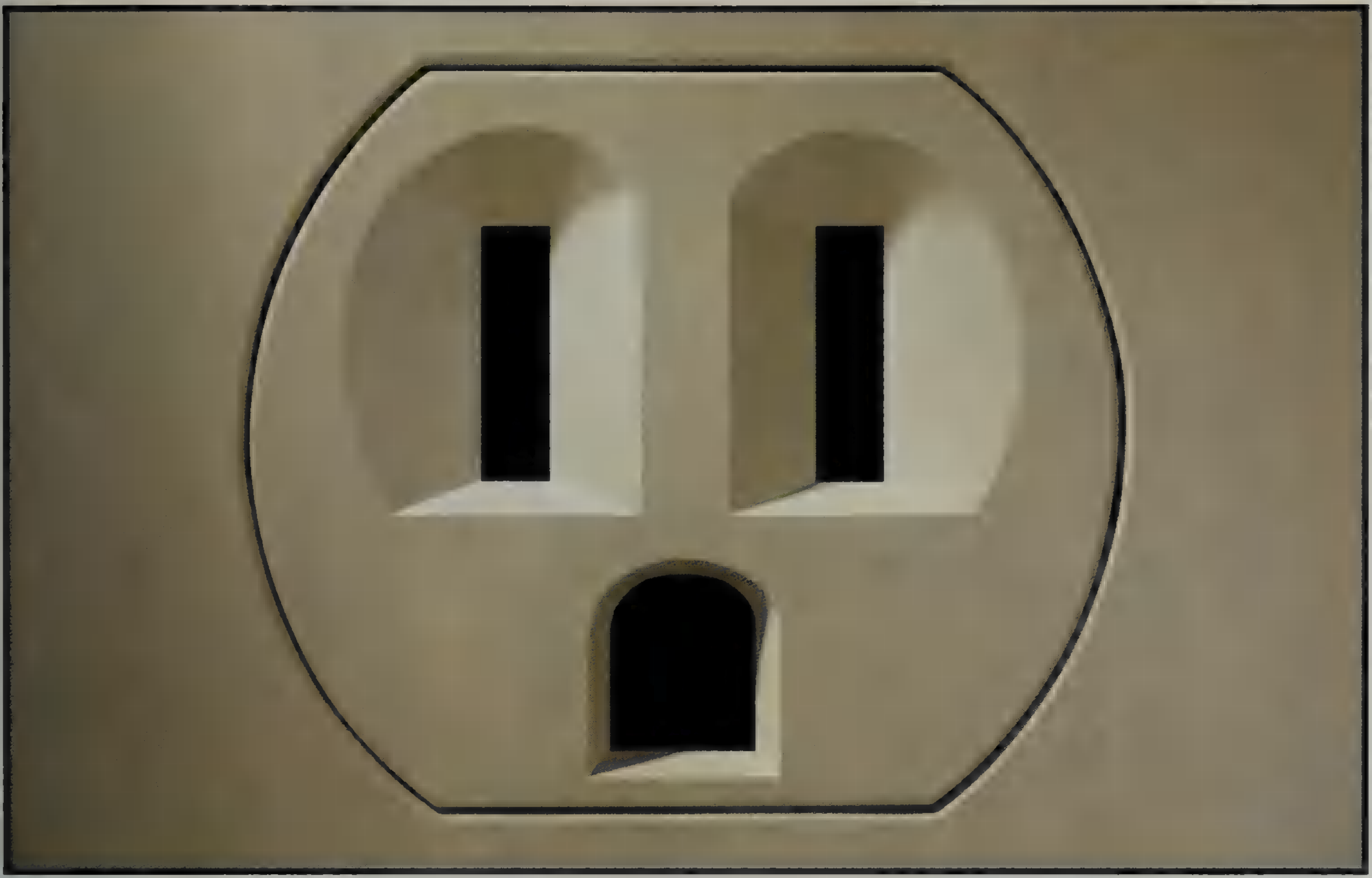

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if you will,

Mary Lou's knee

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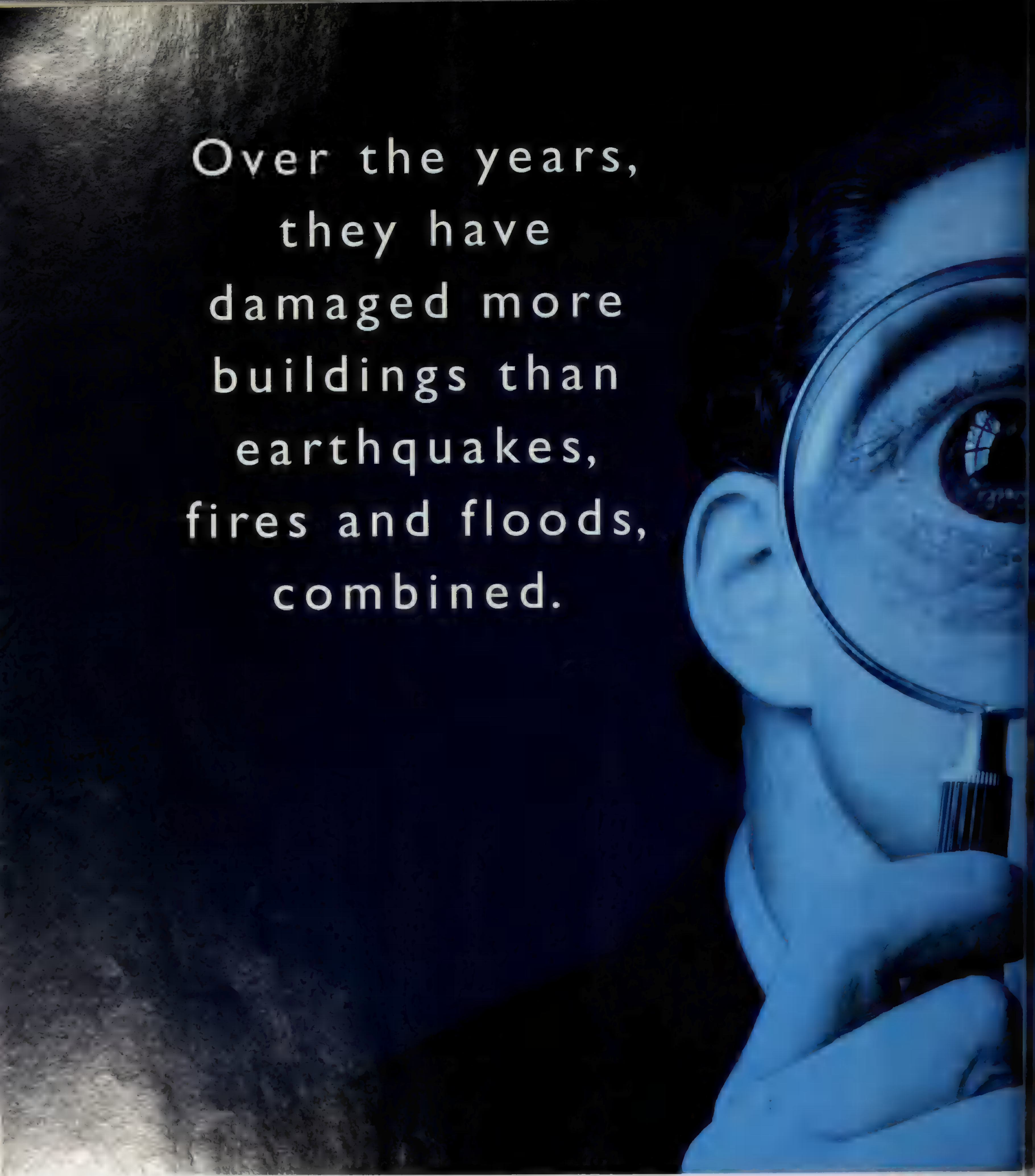
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The four level, 156,000 square foot Headquarters of the Virginia Farm Bureau is set in a 20-acre site on the shore a 40-acre lake in Goochland County, near Richmond.

Project Architects: Carneal and Johnston, Inc.
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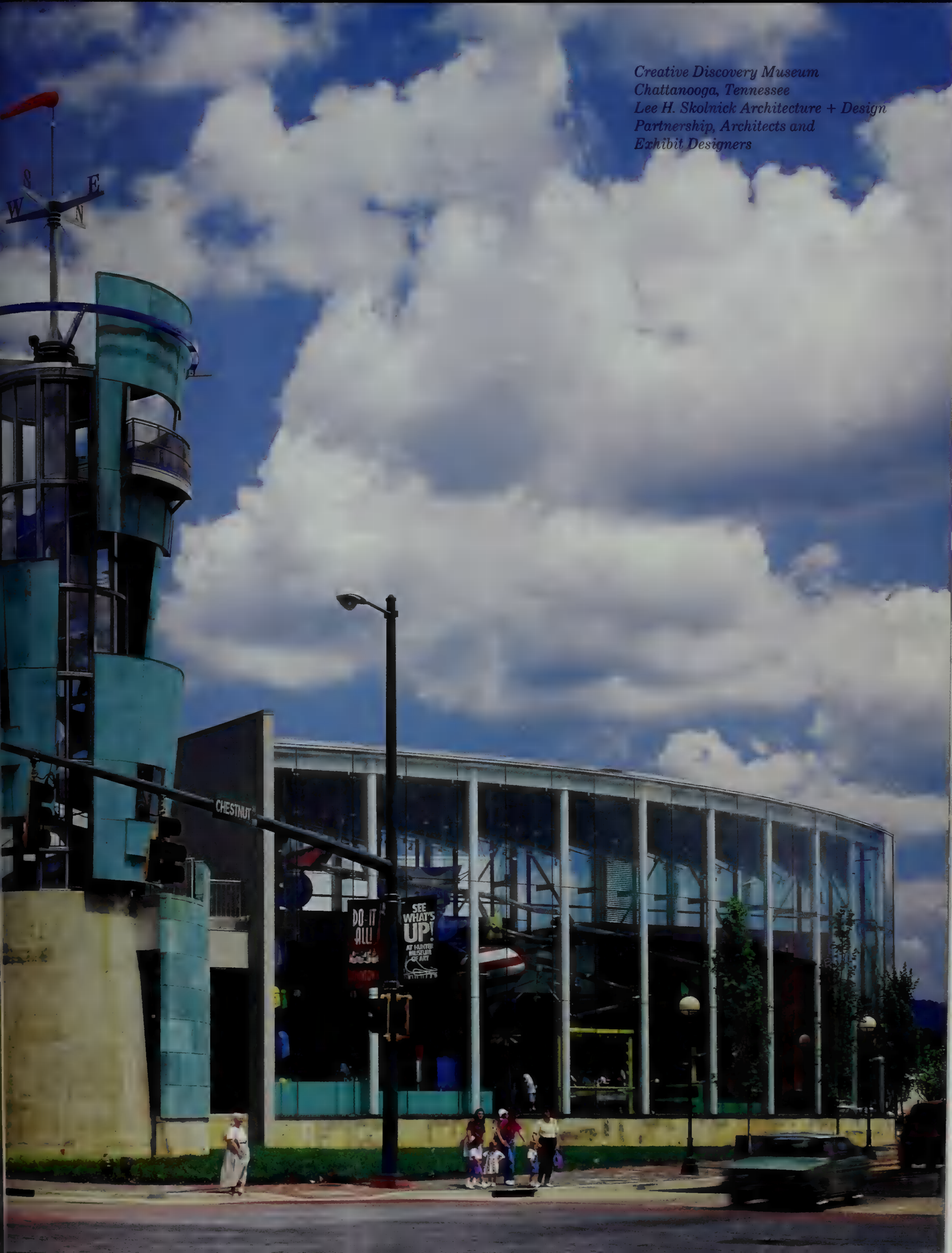
In his report on changing trends in industrial facilities, Building Types Study 729 (page 86), RECORD associate editor Clifford Pearson writes "walls are figuratively (and sometimes literally) coming down." In Europe, walls of a different kind have tumbled, necessitating a new European Court of Human Rights in Strasbourg, France, designed by Richard Rogers Partnership, to resolve disputes among citizens of different nations (page 70). In Harrisburg, Pennsylvania, Bohlin Cywinski Jackson has enlivened a potentially faceless office building and garage wall with overlapping and contrasting layers of concrete, brick, glass, and metal (page 64). At the Creative Discovery Museum in Chattanooga, Tennessee, Lee Skolnick sought to break down not only walls but also, in his words, "the black box" typical of children's museums (page 56). In contrast, architectural firm Perry Dean Rogers built a bridge to link the old and new campus of Hamilton College (page 80).
Karen D. Stein

nufacturers' Sources
ed on page 105

Serious Fun

A new children's museum adds youthful exuberance to a redeveloped downtown.



Creative Discovery Museum
Chattanooga, Tennessee
Lee H. Skolnick Architecture + Design
Partnership, Architects and
Exhibit Designers

Lee Skolnick considers himself something of an expert on children. It's not just that he has two of his own; but in the 15 years since he opened his New York City-based firm, he has designed 12 permanent exhibits and buildings devoted to educating while entertaining youngsters. In fact, his growing practice, which includes his wife, Jo Ann Secor, a museum educator, and institutional planners, is a recognized resource in the recently emerged field of children's museums. Skolnick's own philosophy about such work is summed up with childlike directness. "You can't talk down to kids," he says.

Skolnick found a kindred spirit in Andrée Caldwell, a trustee of the Hunter Museum of American Art in Chattanooga, Tennessee, who approached the architect about adding a children's wing to the institution. With popular support and a $5-million seed grant from an enthusiastic local patron, the project quickly grew into its own facility, which Caldwell now directs. Like many former industrial centers, Chattanooga had experienced dramatic commercial and residential flight from downtown, leaving behind an array of low-rise industrial structures. A consortium of developers purchased an abandoned vocational school on a sizeable lot downtown; as part of the negotiation, the city retained a corner parcel, which was donated to the project.

With the recent opening of the new Tennessee Aquarium, designed by Cambridge Seven Associates (see site plan right), an adjacent two-acre waterfront park by New York City architects and artists, SITE (not shown), and, last May, Skolnick's Creative Discovery Museum, there are new reasons for people to go downtown again. Indeed, the Chattanooga visitors bureau is hoping the museum alone will draw some 300,000 people from a 150-mile radius during its first year of operation.

Skolnick's charge from Caldwell was "to create something world-class," he reports. His response is "based on the creative process—an integration of the arts and sciences." Located at a major traffic intersection, the building has a 65-foot-high flag-pole/science tower draped with oxidized copper panels that is visible from the interstate off-ramp on West Fourth Street. Skolnick set the entrance to the museum along more picturesque Chestnut Street, giving the building three public facades (previous pages and opposite). The fourth side is essentially a blank wall of white porcelain enamel panels punctuated by the truncated purple stucco cone of the party room. The curved glass wall of the "water wedge" contains brightly colored interactive water sculptures visible from the outside by day and night (above right); air is forced up along the inside of the glass wall to avoid condensation. It arcs toward the Aquarium and the Tennessee River beyond, providing the entrance with a forecourt and sculpture plaza. Skolnick's partner Paul Alter calls the 42,000-square-foot building's mixture of forms, colors, and materials "aggressive, but friendly." Skolnick says "assertive."

A large lobby accommodates a ticket desk, museum shop, and heavy stroller traffic (following pages). Large-scale displays occupy the atrium, which leads to progressively specialized areas. In creating the exhibits, which were designed with school outreach programs in mind, [illegible] his team focused on subjects and activities they thought [illegible] would enjoy and learn from: painting and printing in the [illegible] studio," music listening and composition in the "musician's [illegible] mock archeological dig in the "scientist's field lab." How [illegible] architect knew all this would interest the museum's principals? [illegible] He tested them with an in-house expert—his 9-year-old [illegible] D. Stein

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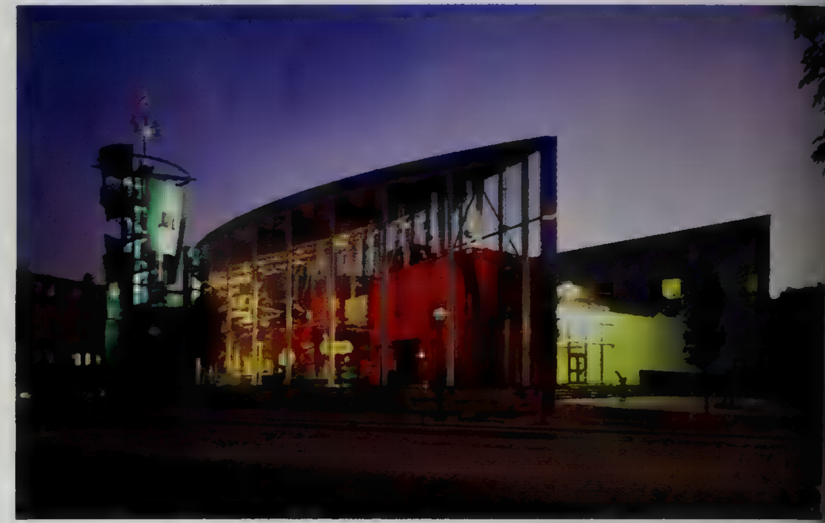
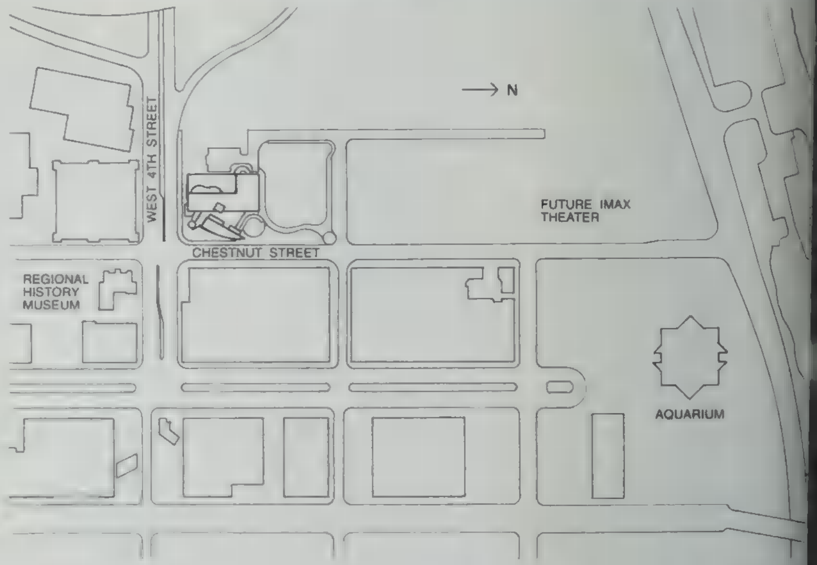
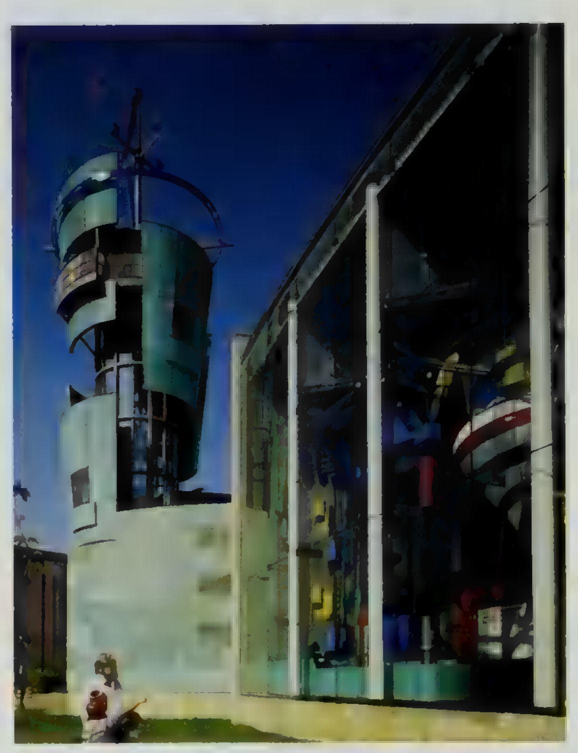
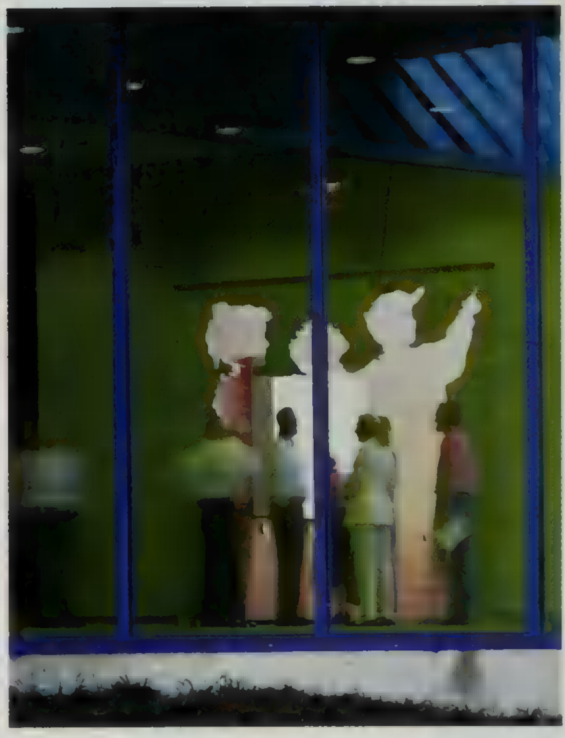


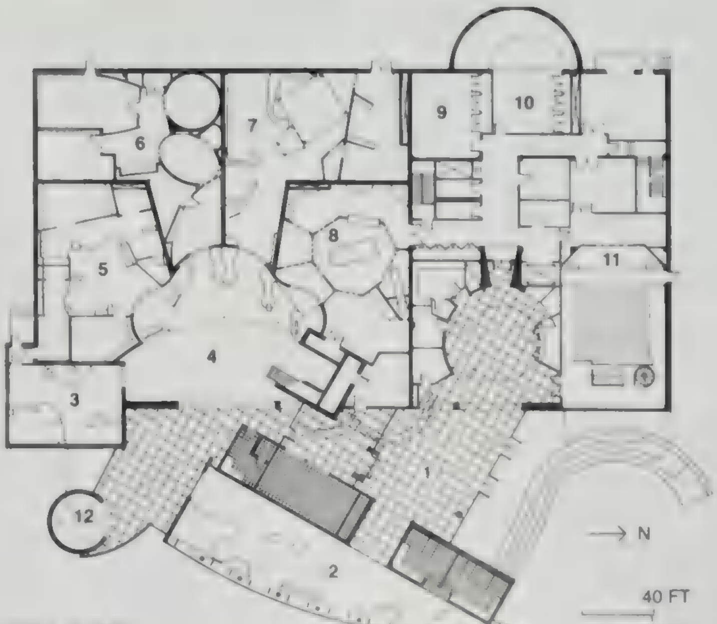


Initially conceived as an add tion to the existing Hunter Museum of American Art, th Creative Discovery Museum evolved into a full-fledged sta alone institution. Located wi Chattanooga's redeveloped ri front district, the $16-million museum is a short walk to th new Aquarium, another new downtown tourist attraction, and the Regional History Museum (site plan above). Future development is slated the site adjacent to the muse both parcels were previously occupied by a vocational sch

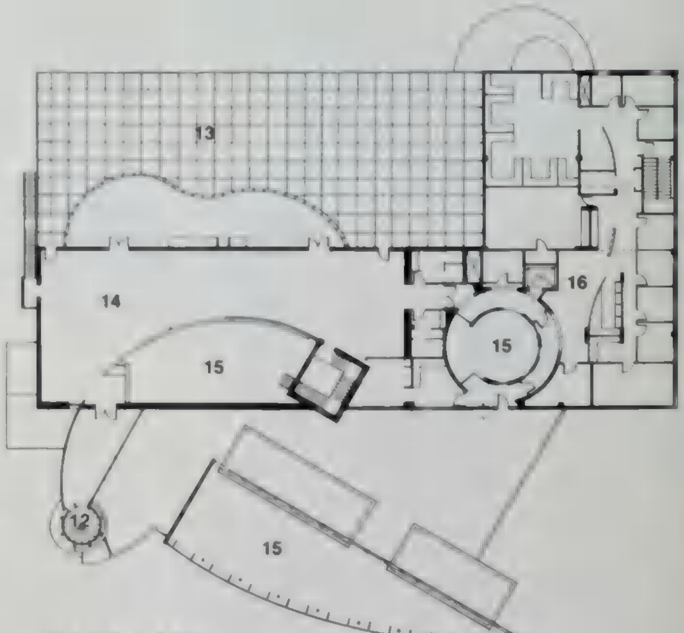




In laying out the sequence of public spaces and exhibit areas the main focus was on "how yo choreograph the experience," says Skolnick. "We wanted the procession [through the museum] to subliminally reinforce the message of the interaction of art and science.' forecourt along Chestnut Stree formed by the 120-foot-long wedge-shaped glass wing (phot top left) screens the entrance from the highway exit ramp at West Fourth Street and funnel visitors into the main lobby (plans below and photo bottom left). An atrium accommodate large-scale displays and leads denser, more specialized areas (following pages), including a artist's studio and field scientist's lab. The "Little Yellow House" is a play space for preschoolers. A 65-foot-high "science" tower contains displays on optics and provides rooftop viewing platform.



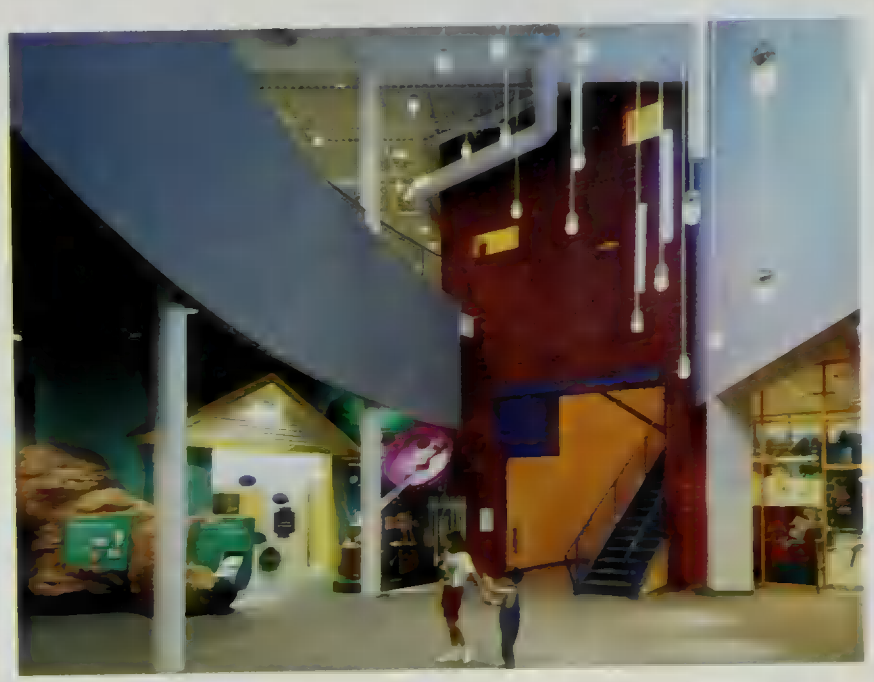
FIRST FLOOR

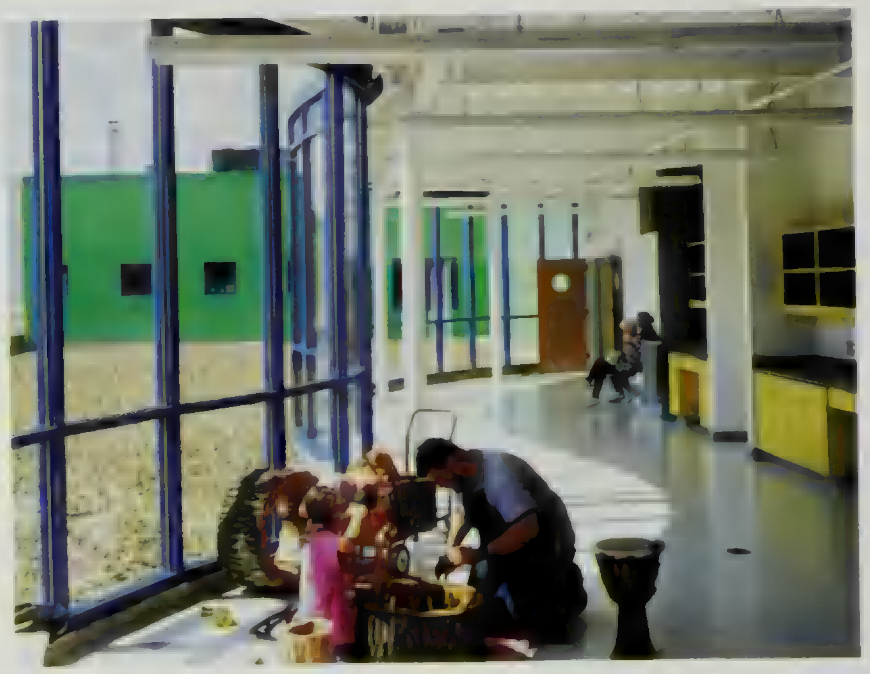


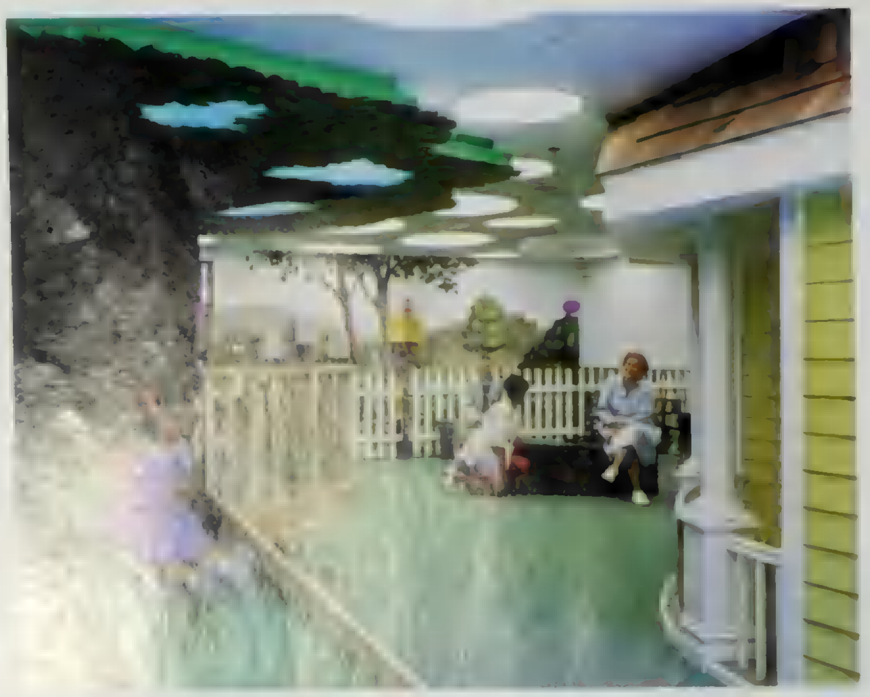
SECOND FLOOR

1. *Lobby*
2. *Water wedge*
3. *Little yellow h*
4. *Atrium*
5. *Artists' studi*
6. *Musicians' st*
7. *Field scientis*
8. *Inventors' stu*
9. *Meeting room*
10. *Party room*
11. *Auditorium*
12. *Tower/observ deck*
13. *Terrace*
14. *Exhibit*
15. *Open to belou*
16. *Office*

DO IT ALL!







Up Close

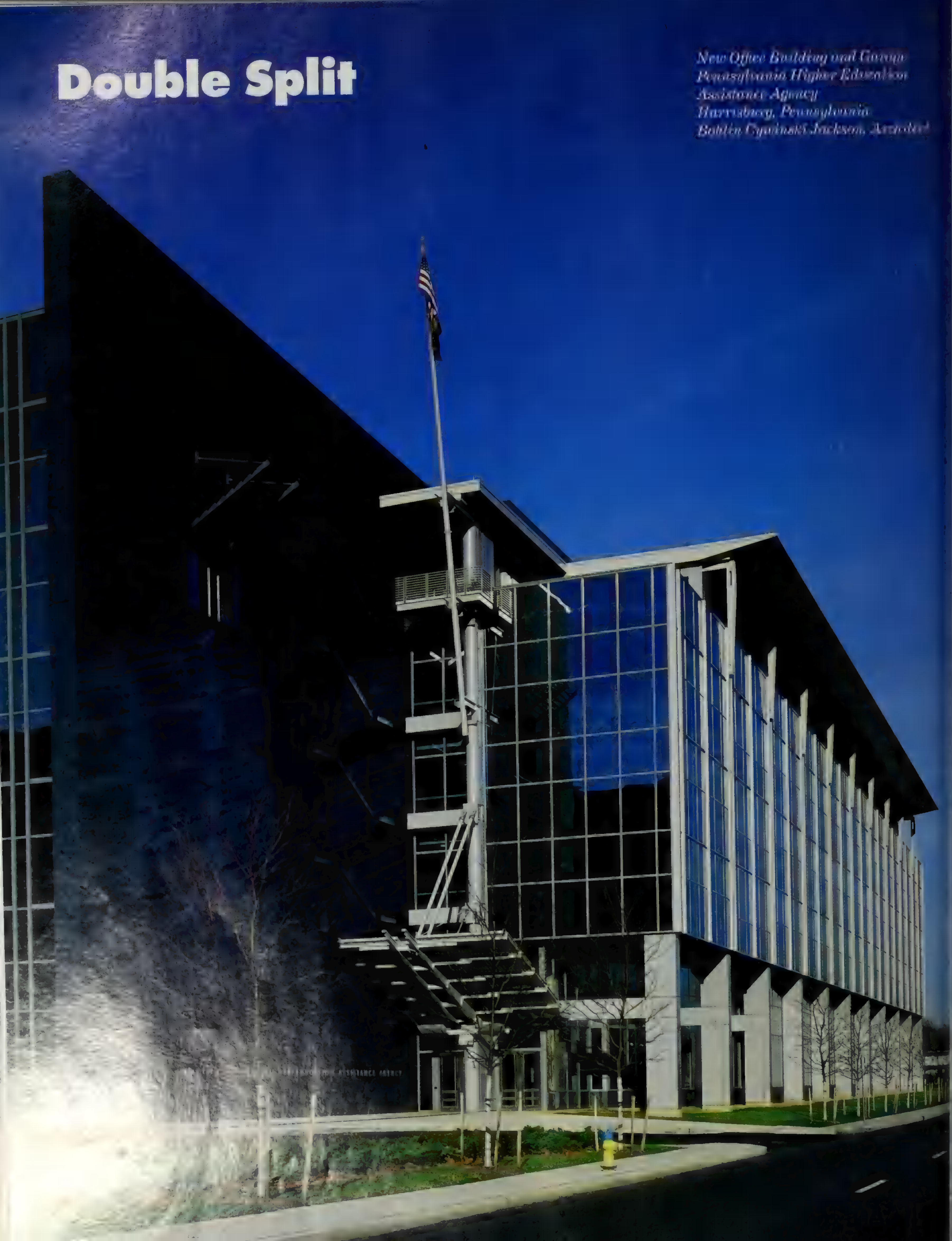
One Stop Shopping. Having designed exhibits for other architects' children's museums and, conversely, building shells f other designers' exhibits, Lee Skolnick wa able to do both at Chattanooga's Creative Discovery Museum. Planning for the nasce institution and schematic design coincided according to the architect, a process that avoided the supposedly flexible "decorated black box" typical of children's museums. in-house team of educators led by Jo Ann Secor helped conceive the museum's missi and a series of joint programs with local schools. Hands-on exhibits allow children experience different creative and scientifi pursuits directly.

The atrium (top left) connects the lobby (middle left) with exhibit areas (bottom le Offices surround a double-height lobby (opposite).

Credits
Creative Discovery Museum
Chattanooga, Tennessee
Architects and Exhibit Designers: *Lee Skolnick Architecture + Design Partnership—Lee H. Skolnick, Paul S. Alt principals; Andrew Fethes, project archit Miguel Cardenas, Olga Rodriguez, Sergio Paz, Robert Portnoff, and Roberta Sloan, building team; Jo Ann Secor, Robert Portn Audrey O'Malley, Cynthia Smith, Ellen Leerburger, Cory Munson, Scott Briggs, J Schmidt, exhibits team*
Engineers: *Superstructures (structural); Altieri Sebor Wieber Consulting Enginee (M/E/P); Watt & Estes Consulting Engin (civil);*
Landscape Architect: *Whittington & Associates*
Consultants: *Downtown Riverfront Planning & Design Center (planning); F Marantz Renfro Stone (lighting); Pentag (graphics)*
Construction Management: *Turner Construction (building)*
Project Management: *Whirlwind & Company (exhibits)*

Double Split

New Office Building and Garage
Pennsylvania Higher Education
Assistance Agency
Harrisburg, Pennsylvania
Bohlin Cywinski Jackson, Architects



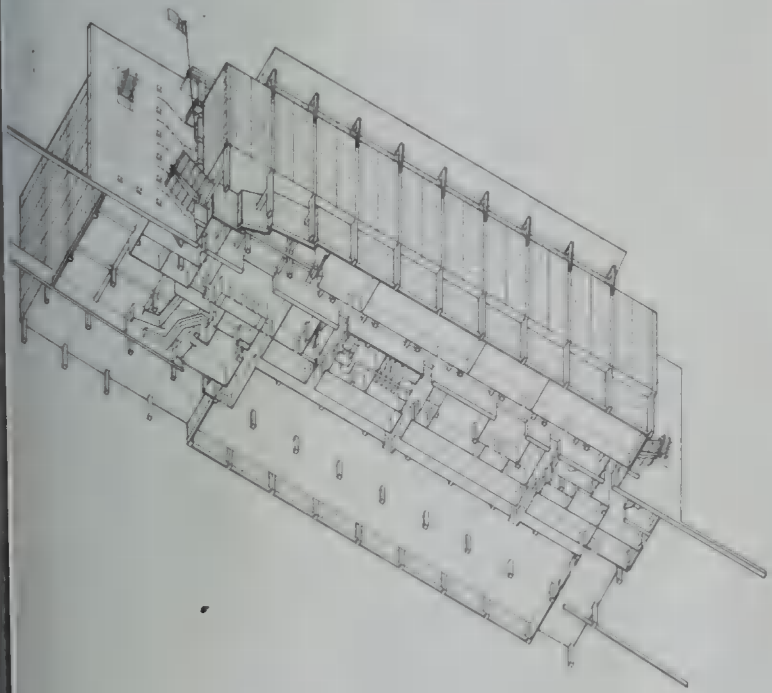
ennsylvania Higher Education Assistance Agency, which runs cial aid programs for higher learning institutions in the state, led to consolidate its 1600-strong staff on a single site. The goal o provide a flexible arrangement of work and support spaces for epartments—along with privacy for the many employees who with confidential financial information.

site offered both an opportunity and a challenge. Long, narrow ft. by 1000 ft.), and flat, it straddled a low density, mixed-use borhood of no great urban distinction; at the same time, it bor- d a major axis leading to the Pennsylvania state house. Hence, a nanding but sensitively scaled design would not only add a sense ace to the local community—it was to be the first major building is redeveloped area—but also help reinforce a major approach o the capitol. Programmatically, the building had to distinguish een spaces and staff that dealt with the public, and flexible back- e loft-like space that could be subdivided to accommodate ging activities of the various departments.

itects Bohlin Cywinski Jackson resolved matters in characteristi- bold, simple fashion. The sturdily horizontal 375,000-square-foot ing—there's also a seven-story unadorned concrete parking ture on one end of the site connected at each level with the office ing through a tier of dark skeletal bridges—is divided along its side by a great blue seven-story 400-foot-long masonry wall into onthouse" and a "backhouse." The narrower fronthouse, geared duce its scale, say design partner Bernard Cywinski and collabo- Peter Bohlin, by means of a highly articulated structure, nted wall planes, and a subtle roof overhang, faces the street, contains the public entrances to the agency. It has clearly defined es and circulation patterns.

ntrast, the steel-framed loft-like backhouse, bulkier and clad ight glass skin of clear or reflective low-E coated glass, houses ort operations on a much larger, highly secure floorplate, divided ovable partitions.

savings in structure and mechanical systems stemming from w elongated plan were used, according to project architect Cor- s Reid, to provide a high level of finishes and quality of detailing, e facility was erected for an unusual $86 per square foot, which led sitework, movable partitions, and systems cabling. *S.A.K.*



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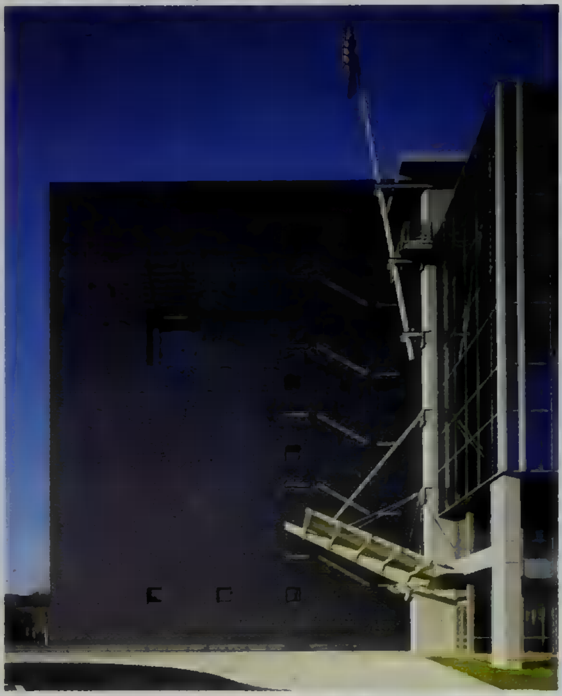
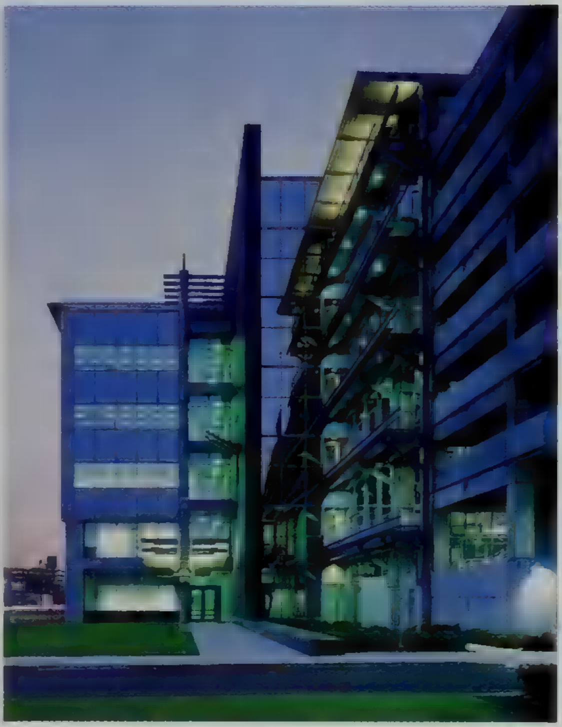
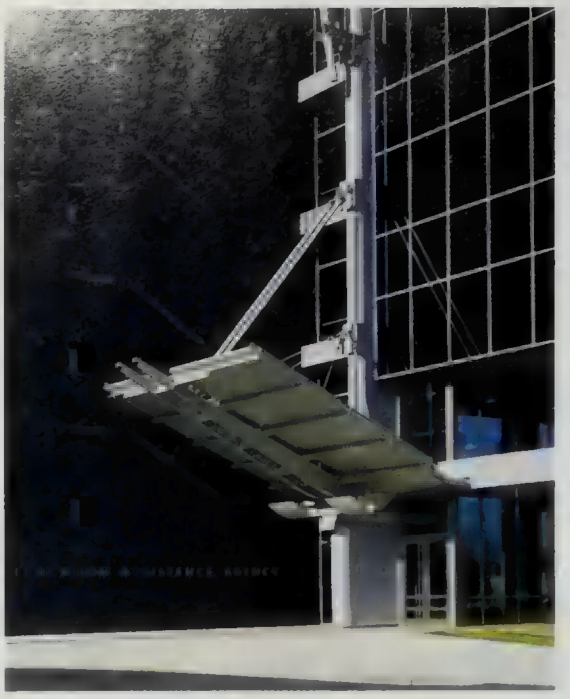
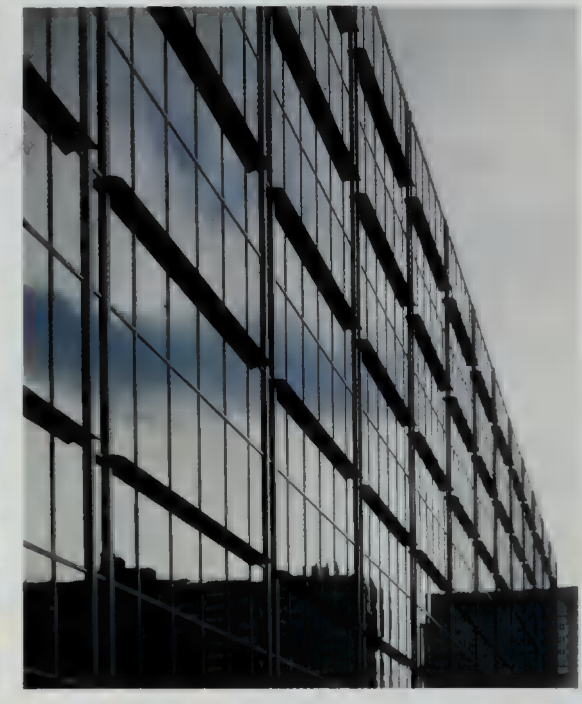




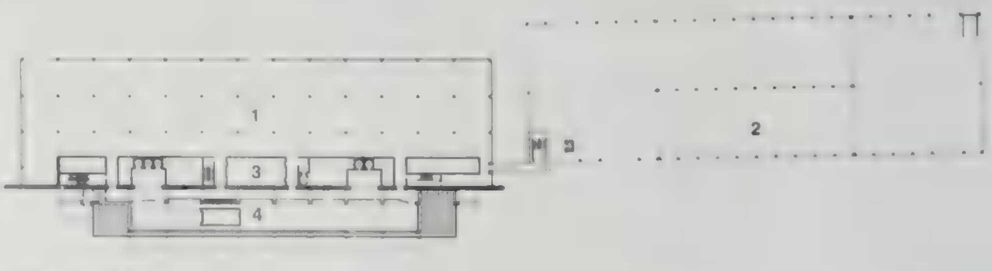
An attached poured-concrete parking garage (above, foreground), is set back from the office building's street facade to reveal the blue-brick wall that separates open, flexible "backhouse" operations space from fixed administrative "fronthouse" functions facing the public, and including the main entrance (top).



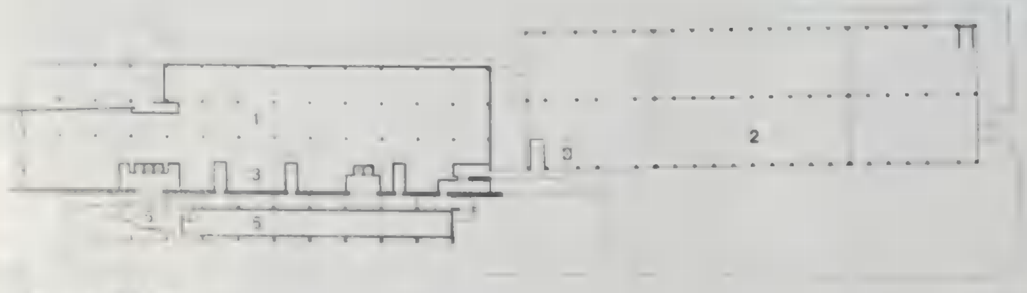


The elongated footprint of the open-office floors allows most work stations to receive some natural light. Users have outs views through floor-to-ceiling windows. Glare on computer screens is controlled by stand parabolic diffusers on fluorescent overhead fixtures and by nature of the glazing. Most is low-E reflective glass—distin blue on the front of the buildi and blue-gray on the back. Exceptions are the windows o the executive penthouse (belo left), shielded by a broad overhang, and the ends of the mai corridor. There the architects provide spatial variation not only through clear views, but raising the typical nine-foot ceiling to 11 feet and creating vertical instead of horizontal space.

"Eyebrows" on the west facad (top, right) serve more to bre up the large plane of glass wa than to provide total sun prot tion. Concern for keeping the computers running and the spaces habitable during elect breakdowns produced dual c feeds and hvac systems at the ends of each floor that norma serve only half of the area, b can serve it all for limited periods. Electric-company supply comes from two separ system sources and, failing t precaution, an on-site gener

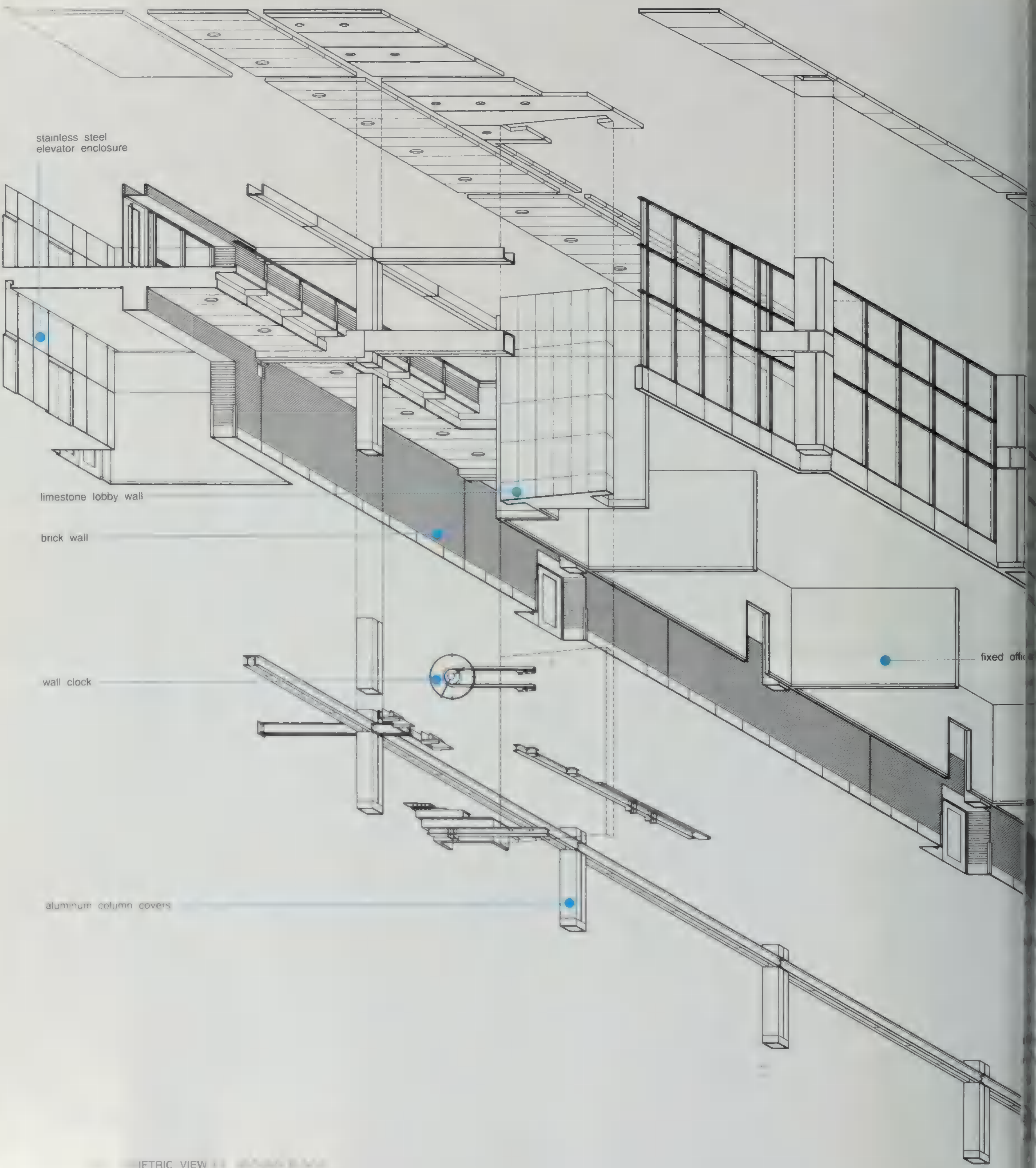


SIXTH FLOOR



[illegible] FLOOR

1. *Open office area*
2. *Garage*
3. *Vertical circulation and mechanical rooms*
4. *Executive offices*
5. *Lobby*
6. *Recruiting, legal, administration*


stainless steel
elevator enclosure
timestone lobby wall
brick wall
wall clock
aluminum column covers
fixed offi

[illegible] METRIC VIEW [illegible]

*lrawing (opposite) reveals
are the architects took in
ling the building. It shows
elationship of the various
finishes, including the alu-
um curtain wall facing the
t (photo upper right). Note
the manner in which beams
through the curtain wall,
onnection of aluminum
nn and beam covers, the
less-steel elevator-shaft
osures, the blue limestone
thing with granite corner
ds, and the specially
med clock (center) the archi-
squeezed into the tight
et.*

*pical backhouse open-office
(below) shows a neat wide-
space. However, various
ps are able to arrange fur-
re and high and low
itions to meet changing
s.*

*Office Building and
ing Garage for the
nsylvania Higher Education
stance Agency*
er: *Capital Commercial
oration*
itect: *Bohlin Cywinski
son—Bernard J. Cywinski,
Q. Bohlin, principals;
elius J. Reid, project
itect; Joseph Bridy, Kenneth
hell, Paul Sirofchuck,
ard Stokes, Adam Glasser,
Vresilovic, Terry Surjan,
ael James, Maria Segal,
y Sokolove, project team*
neer: *Brinjac Kambic and
iates (structural, MEP,*
ultants: *Professional
ms Engineering
ovisual, acoustic); R. M.
and Associates (food
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**Venture General
ractors, Office Building:**
*Brothers, Ltd. and H. B.
nder and Son, Inc.*
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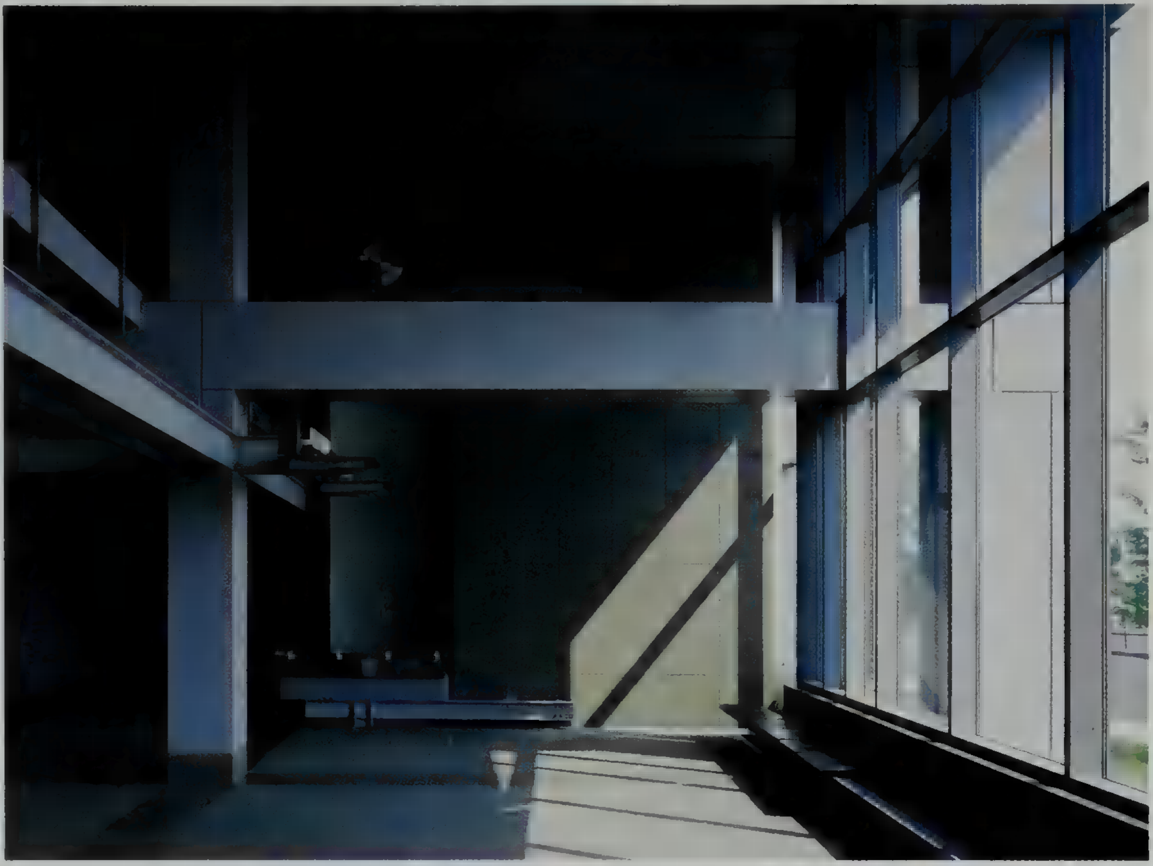
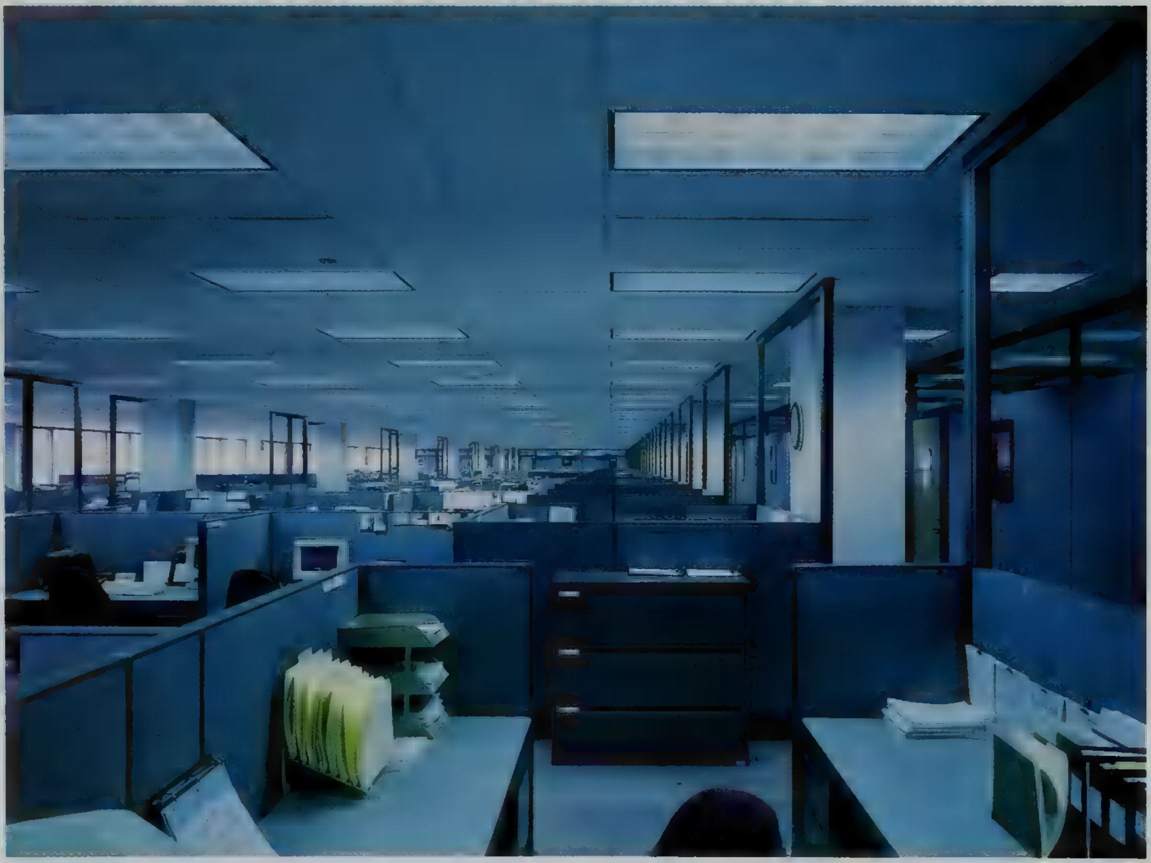
ge:** *H. B. Alexander and
nc.*

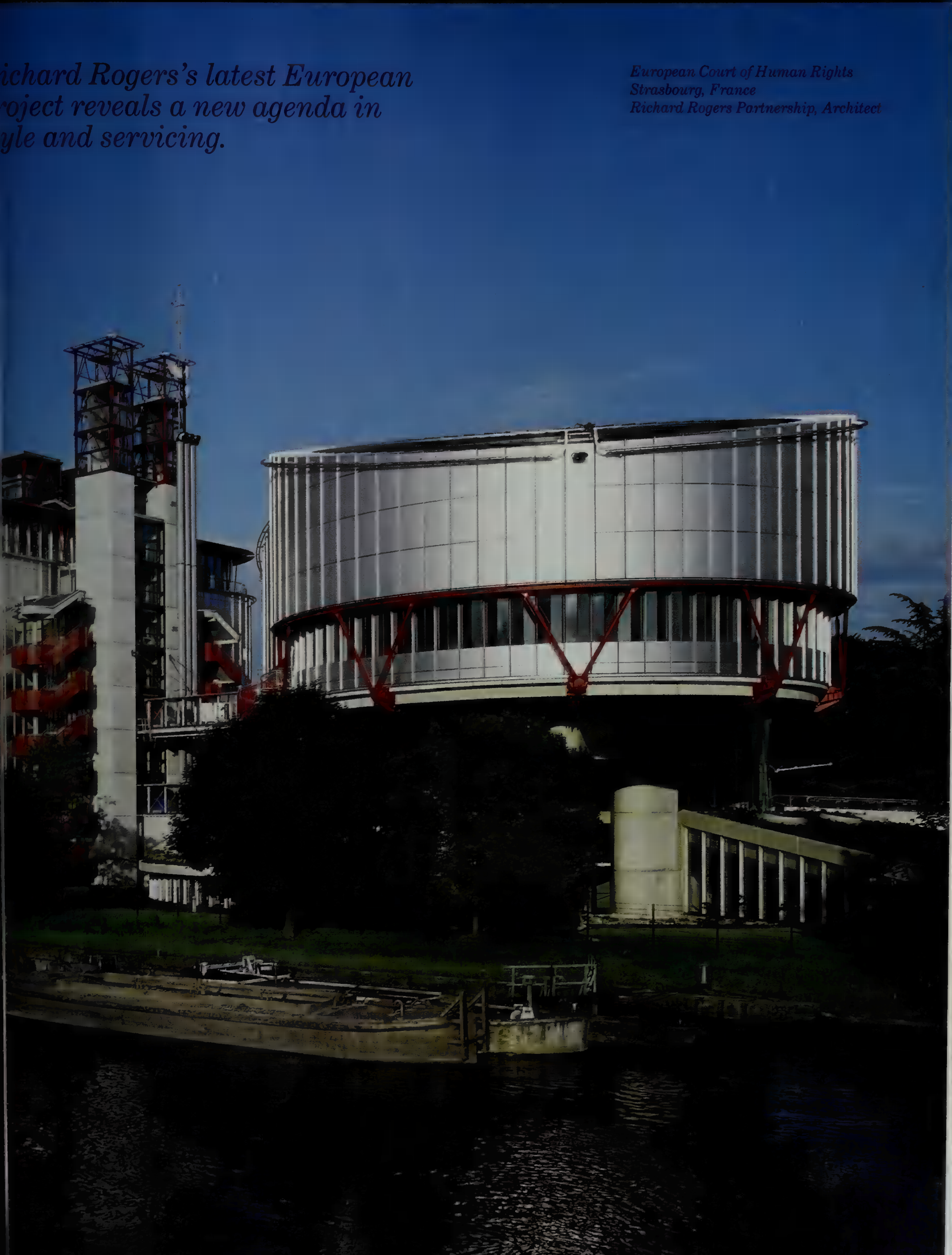




Court in the Middle

ichard Rogers's latest European roject reveals a new agenda in yle and servicing.

European Court of Human Rights
Strasbourg, France
Richard Rogers Partnership, Architect



In the mid-1970s, Richard Rogers, in collaboration with Renzo Piano, created one of the architectural icons of our age: the Centre Pompidou in Paris. In the mid-1980s, he designed Lloyd's of London [RECORD, November 1986, pages 104-117], the apotheosis of structural and building-services exhibitionism. What may prove to be Rogers's key building of the 1990s is rather different.

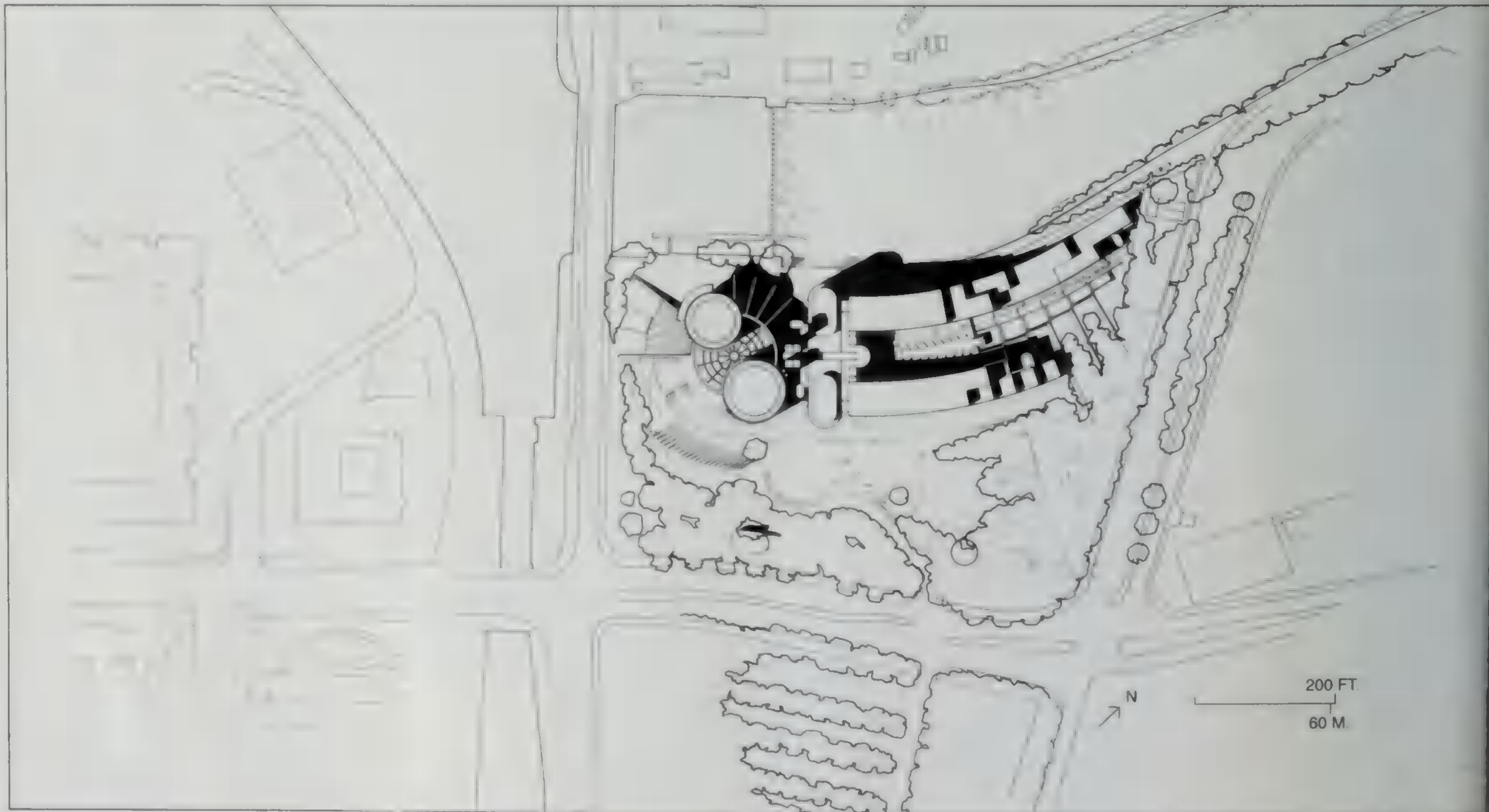
In his drawings, Rogers has long shown a different stylistic streak influenced by Expressionism; the European Court of Human Rights is his first building in this idiom. Whereas Lloyd's is about controlling nature, the court reveals a new, softened Rogers, who now acknowledges Lloyd's is all but obsolete and seeks instead harmony with nature. This building is "low tech" and "green," and, what's more, it says so: by past Rogers standards, the detailing of services is the model of discretion. Lloyd's is notorious for its abundance of external ductwork carrying air to central spaces. The Court, however, makes do with operable windows, despite Strasbourg's harsher climate. "It's a little further down the road to greenness," says Rogers. "Sustainable development is now pushing things hard. Lloyd's took energy considerations on board, but for the first time this [Court] building is largely naturally ventilated." In addition to plants that will eventually tumble from giant window boxes down the facade, water will cascade through a central courtyard between the two administrative blocks, an effect reminiscent of Joseph Paxton's designs at Chatsworth gardens, providing both real and psychological cooling.

It can only be wishful thinking that the official description of the buildings of the European Union and Council of Europe clustered along the river outside of Strasbourg is "a campus." In truth, this grouping of offices more closely resembles a drab executive park than any intellectual arcadia. As these administrative bodies prepare to expand following political upheavals in Eastern Europe and the rush of applications to join the European Union, the buildings will soon be outgrown. Now there is an opportunity to ensure European idealism is expressed in architecture as well as it is in political rhetoric. Rogers's court is the first step. Future plans calls for a European Pa liament designed by up-and-coming French partnership Architectur Studio—a spectacular addition.

The Court itself has an unusual history. A local architect was thrown off the job in 1989 when then French President François Mitterrand refused to lay the foundation stone, claiming that since the new facil ty would be of international importance it should have an architect o international repute. Rogers won the ensuing competition with a scheme that separates the main court chambers from the commissio offices (see plans and sections following pages). The chambers are dramatic metal-clad drums connected by a cylindrical glazed lobby. The offices stretch out from this central hub in two parallel curving blocks with successive floors stepped back like the decks of an ocean liner. The concrete and glass of their exterior is broken up by the planters and sunshades at each window.

Materials are not opulent, and what is basically cheap is made chee ful by the liberal use of primary colors. Bold references to the Russian Constructivism of the Vesnin brothers are evident in the bright red metalwork of the elevator shafts and rooftop chilling-pla rooms and to the Expressionism of Erich Mendelsohn in the organi form of the building as it follows the bend in the river.

The Court is the latest in a slew of notable works by British archite on the continent, particularly in France. Will Alsop's blue battleship a regional administrative center in Marseille [RECORD, June 1992, pages 96-99] and Sir Norman Foster's Carré d'Art library/museum Nîmes [RECORD, October 1993, pages 62-71] are two spectacular recent examples. Despite these successes abroad, Britain conspicuously refuses to return the favor by awarding significant commissio to foreign architects to build on its soil—an inequity worth ponderi within Rogers's new European Court. *Hugh Aldersey-Williams*

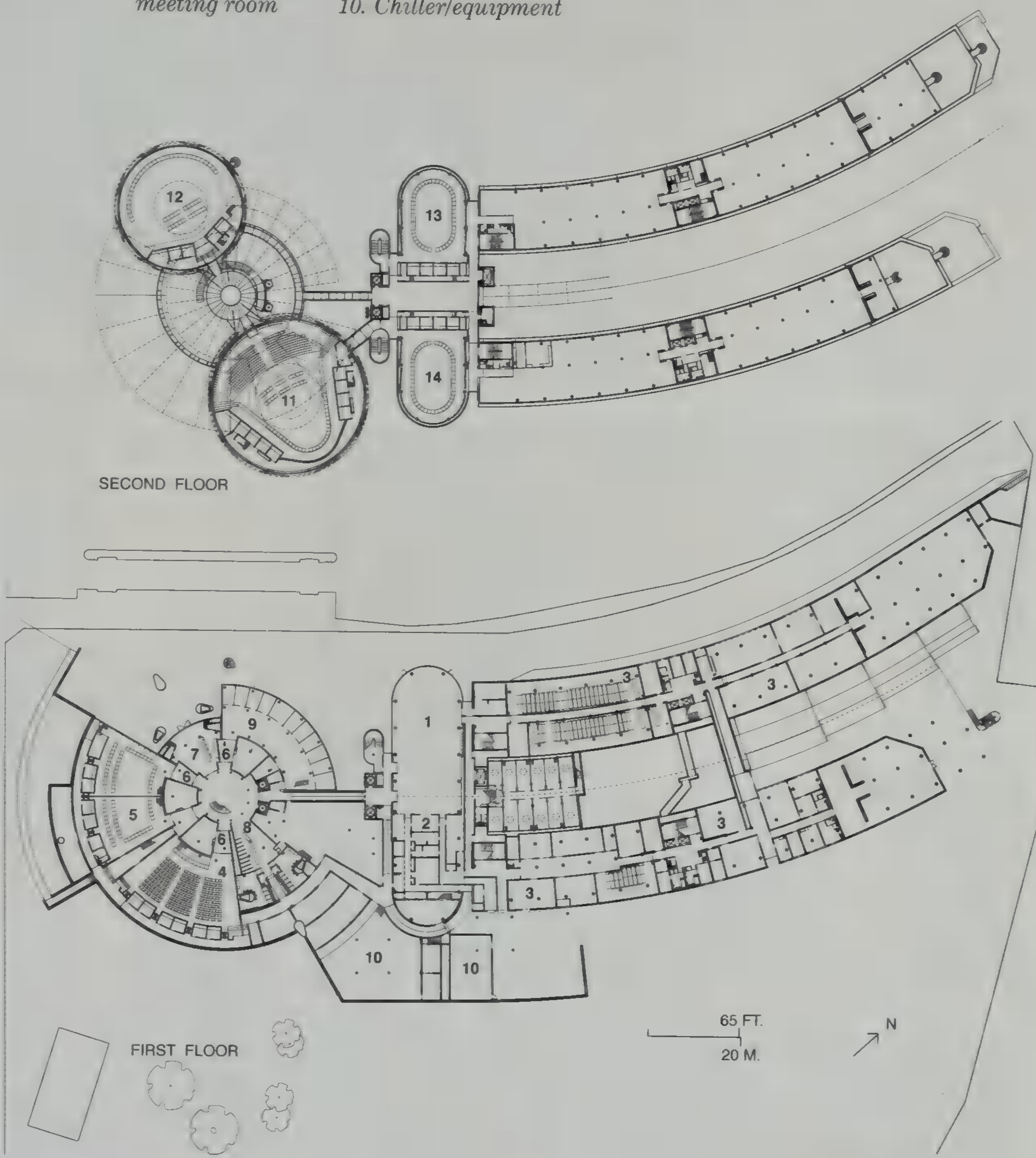


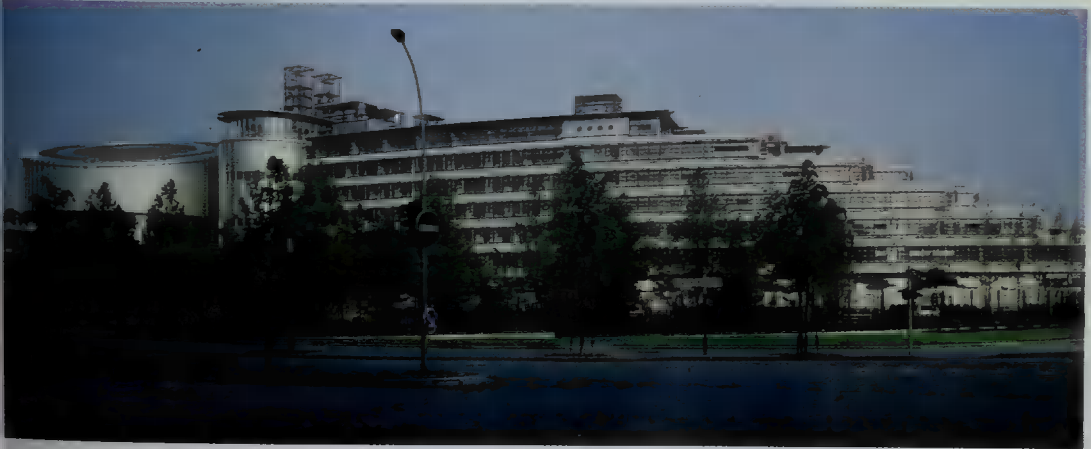
e European Court of Human
ghts hugs the bank of the river
at meanders through the site of
Parliament facility in Stras-
urg, France (previous pages
d below left). The building by
chard Rogers bears little
emblance to a traditional
urt, but whether this makes it
uinely more approachable
nains to be seen. It still has
imposing bulk of official
hitecture and justice literally
ngs heavy in the air as you
lk beneath the cantilevered
urt-room drums into the glass
by (below right).

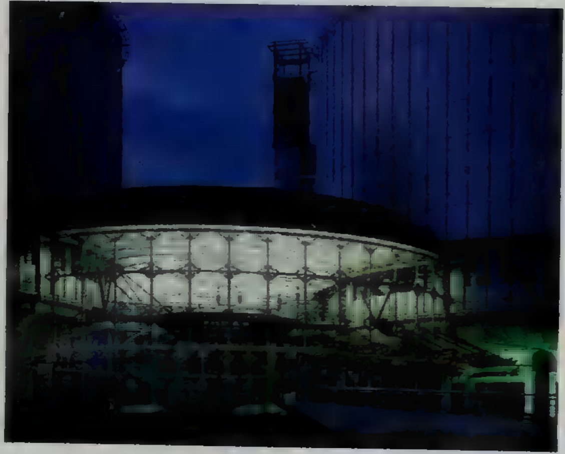
ch of the budget has been lav-
ed on the formal end of the
lding, where the courtrooms
l commission and judges'
mbers are clad in stainless
el. Bridges link courts with
ninistrative areas, which
ommodate 300 staff members,
inly in spartan offices
ning off corridors that run
m the center of each curved
g.

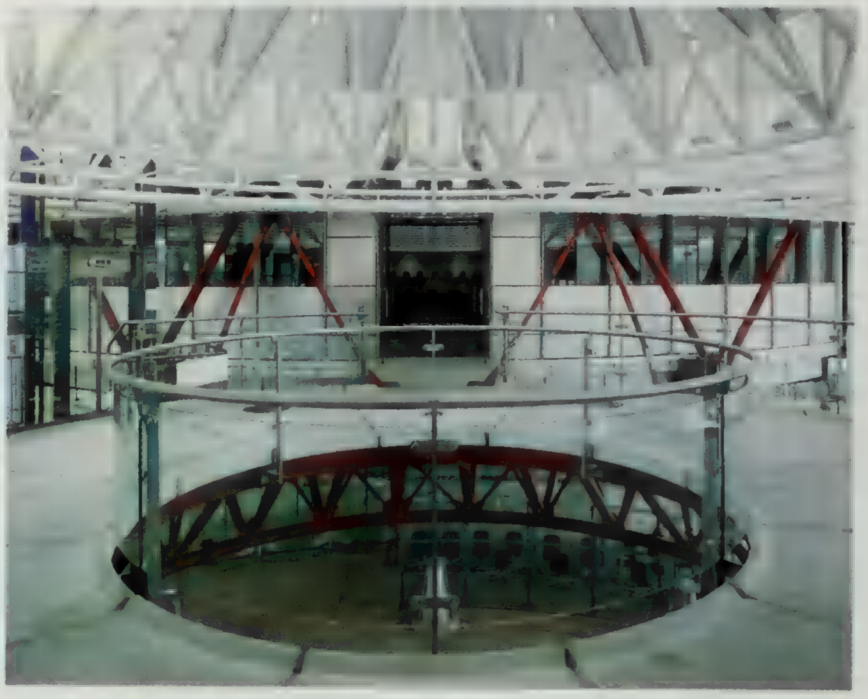
ure expansion was key to the
ject since European institu-
s are changing quickly. The
e terraces can be easily
arged by elongating the ser-
tine curves (plans right).

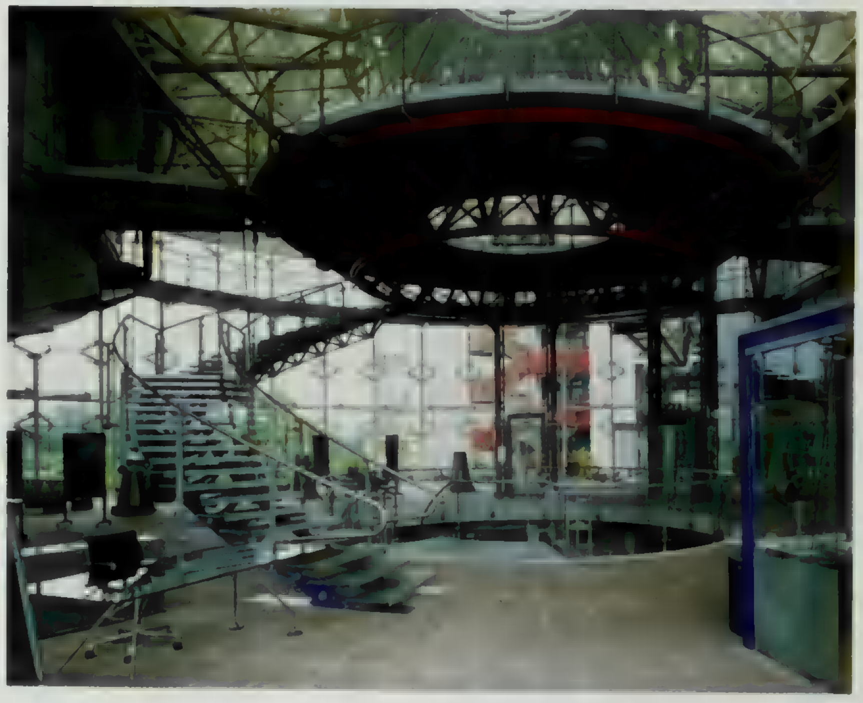
1. *Restaurant*
2. *Kitchen*
3. *Office*
4. *Press/visitors*
5. *Administration meeting room*
6. *Vestibule*
7. *Cafe/bar*
8. *Telephones/ coat room*
9. *Library*
10. *Chiller/equipment*
11. *Court room*
12. *Commission room*
13. *Court meeting room*
14. *Deliberation room*

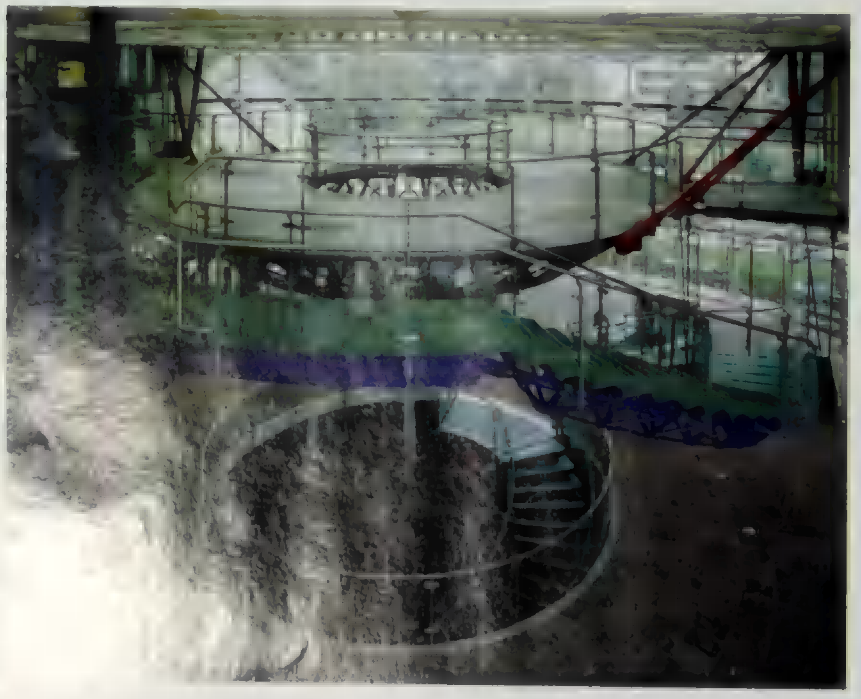








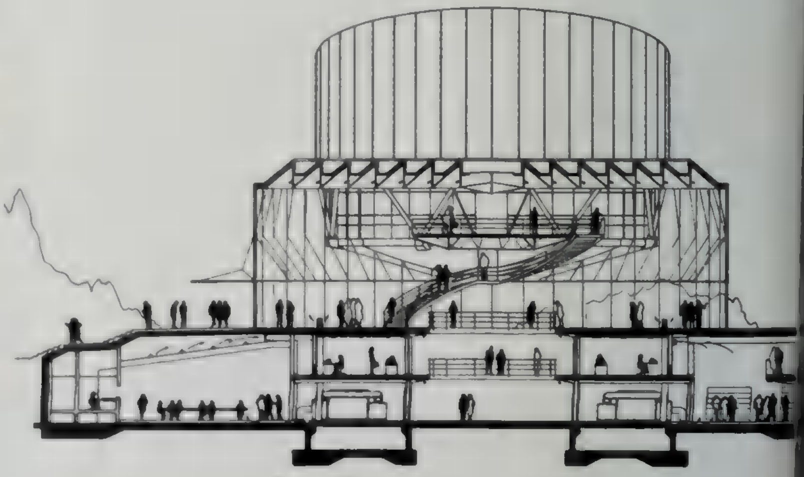


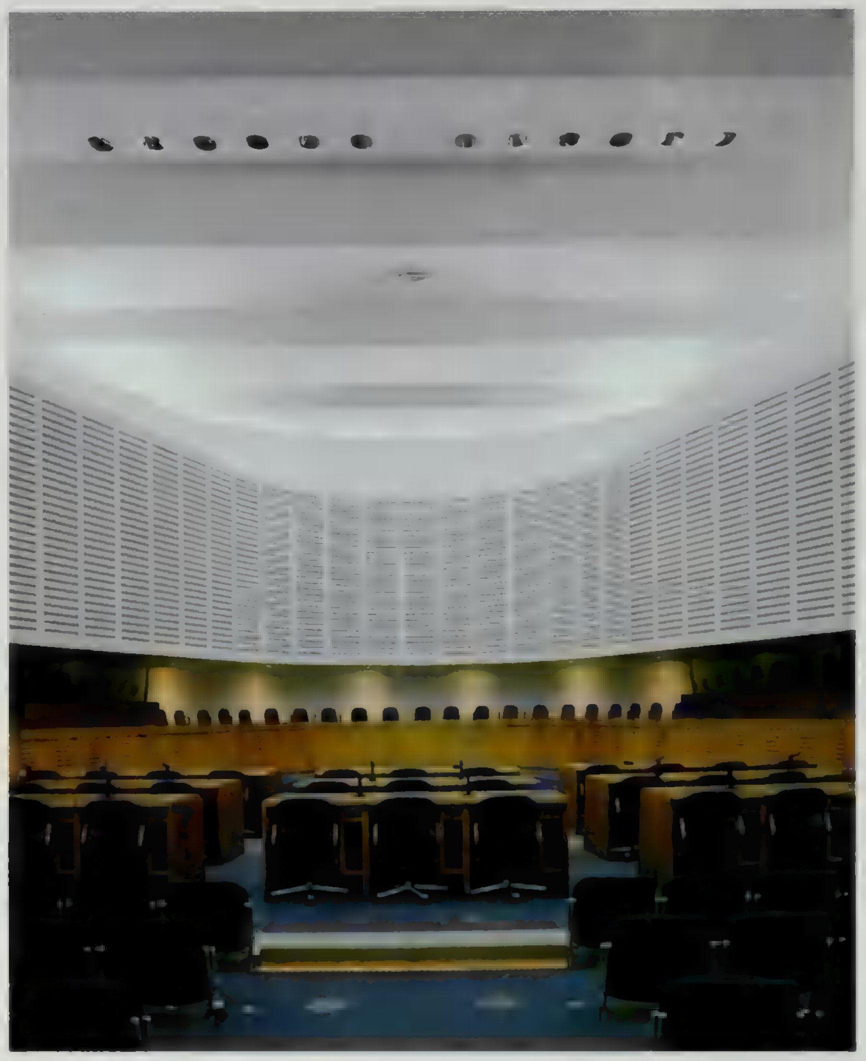


Up Close

Justice for All. The European Court of Human Rights is the ultimate arbiter of grievances among citizens of most of the European nations. Plaintiffs with a legitima case (approximately half of those who visit the facility) are first referred for consultati with officials in one of the small chambers located in the block between the office wing and the court rooms. If their complaint is deemed serious, it is heard by permanent representatives of member countries in the commission room, the smaller of the two court rooms. If it remains unresolved, it is referred once more, this time to a visiting panel of judges, which meets for one week every month in the large courtroom.

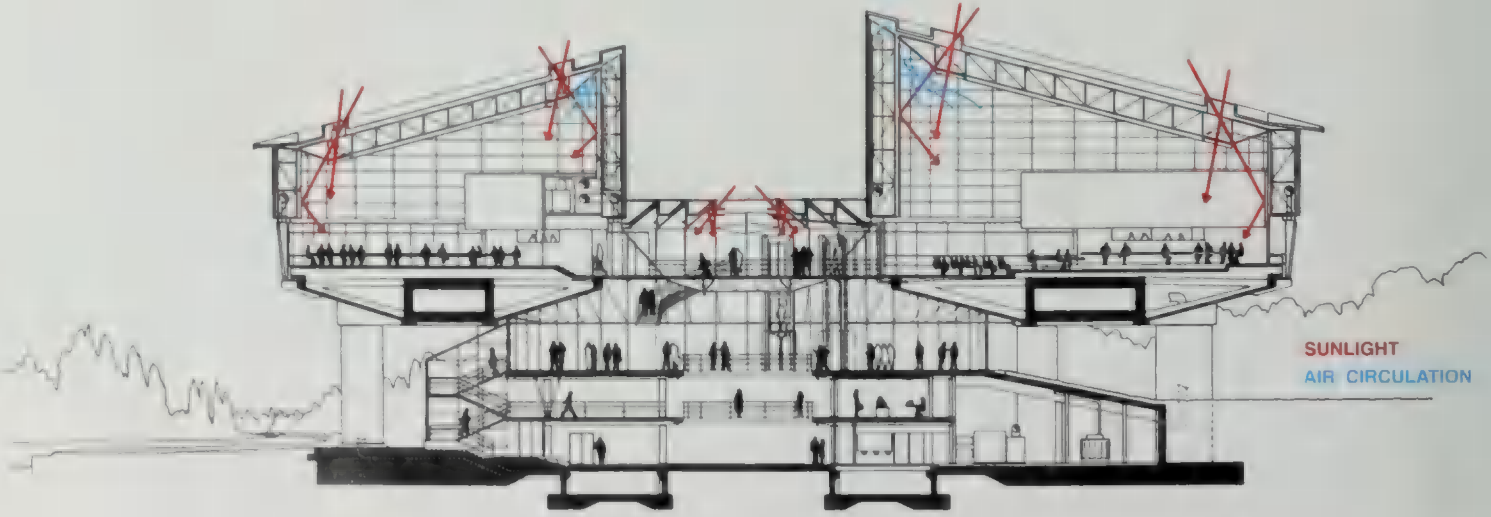
The main entrance opens on a sweeping fli of stairs into the stone-floored, glazed lobb (section below and photos bottom and midd left). Plaintiffs, defendants, counsel, and spectators ascend free-floating spiral stairs or use glass elevators to an aerial circular walkway (top left), which leads to both cou chambers. Judges circulate along a separa bridge, which links to a deliberation chamb and private offices. The central spaces are the only parts of the building that are air c ditioned: the high thermal mass of concret on exterior surfaces and operable windows makes air conditioning unnecessary in the office wings. Dedicated heating plants allo building wings to be heated according to u





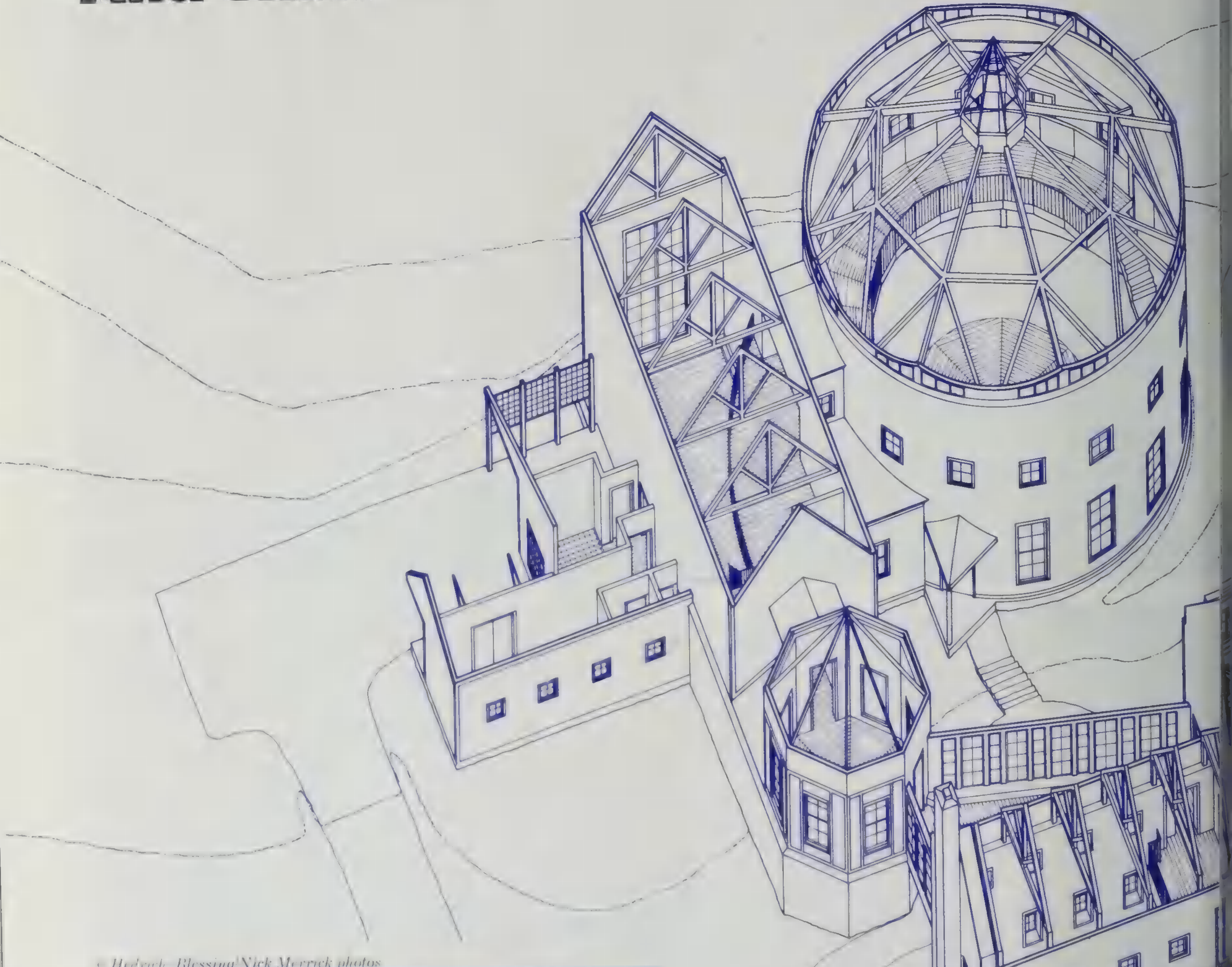
The smaller chamber is where the bulk of cases are heard by a panel of permanent commissioners who sit in a semi-circle (opposite top). Plaintiffs, defendants, and counsel face them while translators occupy booths at the rear. In the court room (left and opposite bottom) there is also public seating. Both chambers are of similar construction, with dramatically sliced ceiling planes. Natural light filters in along the edges of the rippled suspended ceilings, which, with their acoustic perforations and pastel hues, evoke the civic idealism of the United Nations headquarters in New York City.

Credits
Court of Human Rights
Strasbourg, France
Client: *Conseil de l'Europe; Vi*
de Strasbourg
Architect: *Richard Rogers Partnership—Laurie Abbott, Peter Angrave, Eike Becker, M Davies, Elliot Boyd, Karin Eg Marco Goldschmied, Pascale Gibon, Lennart Grut, Ivan Harbour, Amarjit Kaisi, Sze-King Kan, Carmel Lewin, Avt Lotay, John Lowe, Louise Palomba, Kim Quazi, Richard Rogers, Pascale Rousseau, Yu Toh, Sarah Tweedie, Andrew Tyley, Yoshiyuki Uchiyama, John Young, project team*
Site Architect: *Atelier d'Architecture Claude Bucher*
Engineers: *Ove Arup and Partners; Ominium Techniqu Européen*
Consultants: *Thorne Wheatle Associates (quantity surveyor David Jarvis Associates and I Kiley (landscape); Lighting Design Partnership (lighting) Sound Research Laboratories and Commins Ingemansson (acoustic)*



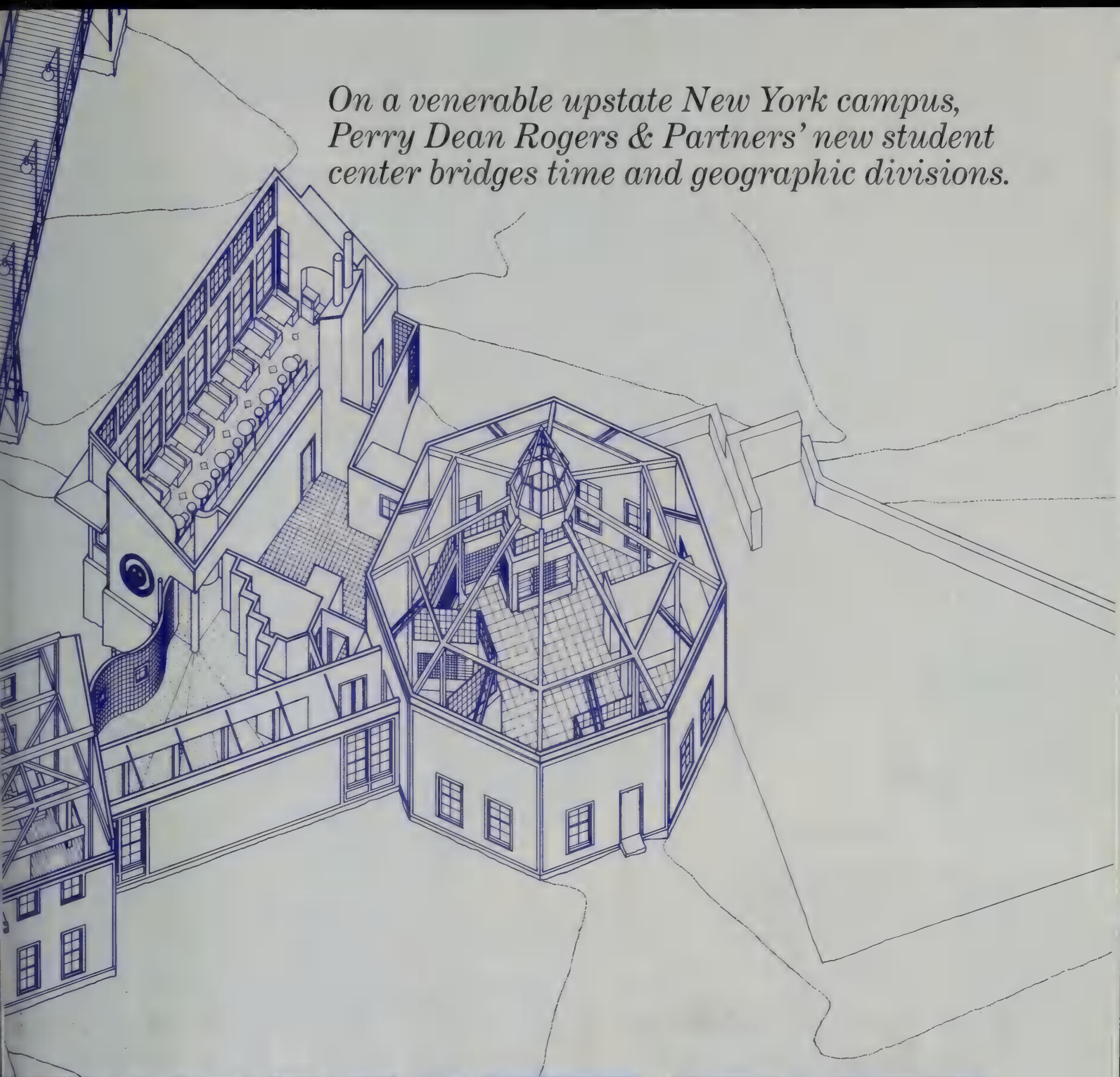
Links in Space And Time

Walter J. Bieneke Student Activities Vi
Hamilton College
Clinton, New York
Perry Dean Rogers & Partners, Archite



© Hedrich-Blessing/Nick Merrick photos

On a venerable upstate New York campus, Perry Dean Rogers & Partners' new student center bridges time and geographic divisions.

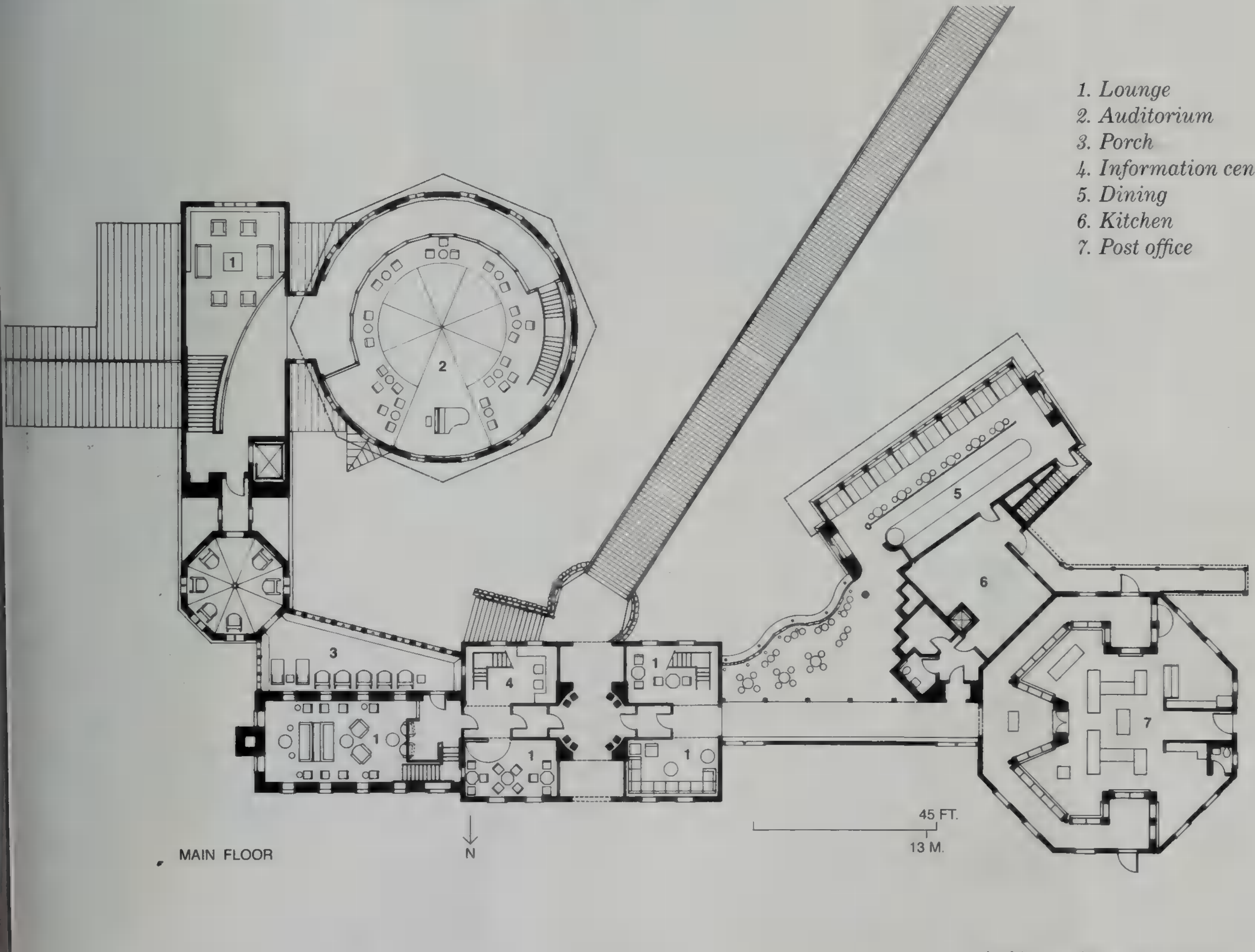


f Alexander Hamilton's namesake college was completed early in
20th century. Its builders used a straightforward vernacular of
stone, yellow-painted wood, and green roofs for buildings loosely
nged around a quadrangle north of College Road (at bottom of
below). To the south, perched on the edge of a deep ravine, still
d barns recalling the area's agrarian roots. During the 1960s, the
ge started the new Kirkland Campus made up of massive Brutal-
yle exposed-concrete structures located across the ravine and
cifully hidden by trees in the summer from the otherwise pastoral
ng. Both it and the old student center, a quarter mile down the
, were isolated from the original campus.

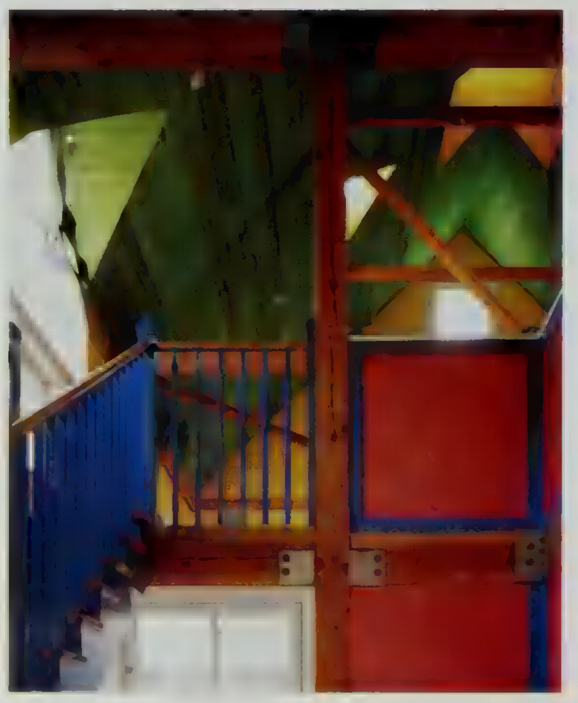
e late 1980s, Hamilton was caught up in the competition for stu-
s typical of other higher education institutions—especially when
were private, relatively small, and remote. The trustees thought
door swimming pool would do the trick and called in Perry Dean
ers. The trustees were impressed when the firm recommended
if the college was to build a pool, it should be a real attention-
er—a full-size NCAA facility. They also welcomed the architects
ess in continuing the scale and character of the old campus in
a large new structure. It was the start of the firm's involvement
the school that now includes planning and upgrading existing
ities.

latest phase of new construction called for a centrally located
ent center that would unite both campuses, yet be part of the old
The architects reused a Hamilton landmark on axis with the quadrangle—a large salt barn teetering on the edge of the ravine and on the brink of ruin—as the centerpiece of a "village" that houses a large-scale program in an array of small-scale structures. These recall a variety of local prototypes, including many farm structures and a 1950s diner. New amenities include a post office, an information center, a theater, multiple lounges for large gatherings and study, and, in the diner, dining. For the salt barn to serve for human habitation, the architects had to replace the leaky windowless walls. But they preserved the barn-like appearance by replacing its large central doors with a generous open corridor that slices through the building to terminate a bridge across the ravine, connecting new and old campus at last.

"There are high-tech lighting, acoustics, and cabling housed in this low-tech structure," says project architect Frank A. Chirico, who not only worked on design development, but on site representation as well. General contractor Charles Gaetano—more accustomed to building houses—used very basic construction methods for the $4.8-million wood-frame structure, including hammers instead of nail guns, and manual hoists instead of cranes. Foundations presented a special challenge since the ravine side of the site was land fill, which required poured-concrete walls almost as tall as the buildings themselves. The auditorium required 2-by-12 studs to contain air-handling ducts and acoustic baffling. The result is a room that caused its first-concert conductor to stop in mid performance to comment on its acoustic "perfection." Of special note in a round room is the baffling's elimination of unwanted reverberation. *Charles K. Hoyt*



1. Lounge
2. Auditorium
3. Porch
4. Information center
5. Dining
6. Kitchen
7. Post office



While the architects used traditional cam colors on the exterior, bright contrasts ins caused much discussion at first—especial in the maintenance department where painters, anticipating repairs, objected to any color that was not standard issue. Th cheerful interiors are especially appealin during the gray days of local rural winte And despite the contemporary approach, architects have retained much of the traditional flavor.

The school administrators backed the arc tects' scheme and handled objections with aplomb—even hanging revered stained-g portraits, including Alexander Hamilton in the most colorful lounge (top right) so they seem to float in air. The interior of th diner (bottom left) accentuates its '50s ins ration.

Credits
Walter J. Bieneke Student Activities Vill
Hamilton College
Clinton, New York
Owner: *Hamilton College*
Architect: *Perry Dean Rogers & Partner Charles F. Rogers, II, principal-in-charge Martha Pilgreen, senior associate-in-cha of design; Frank A. Chirico, project archit Richard Terrell, Bruce Hutt, Koonshing Wong, Mark Cottle, Edward Polk, project team*
Engineers: *BR+A Consulting Engineer (mechanical); Brennan & Associates, Inc (structural); R. G. Vanderweil (electrical) Stetson Harza (civil)*
Consultants: *Jerry Kugler (lighting); Acentech (acoustic); P. J. McCarty (plumbing); Tom Succop (landscape)*
General Contractor: *Charles A. Gaetan*

REUNIONS
'04

Manufacturing Design in a Post-Industrial Age

Perhaps no portion of our economy has been more affected by the electronic revolution and the globalization of trade than the industrial sector. Computers, robots, and cheap off-shore labor have closed hundreds of factories around the country and transformed many others into workplaces that would hardly be recognized by Samuel Gompers or Charlie Chaplin's hapless working man in *Modern Times.* Though there are still factories with assembly lines and chimneys that belch scrubbed hydrocarbons into the sky, the nature of much manufacturing has changed dramatically in the last decade. As a result, facilities to house these new processes have changed as well.

"What's happening is machines are getting smarter," says Julie Snow, principal of Julie Snow Architects, a Minneapolis firm that does a great deal of industrial-facilities design. "And so are workers." Snow explains that the "laborer is not just an extension of a machine—not just a muscle. Today, the laborer communicates with the machine, often a computer, on an intelligent level." In the past, a factory worker usually performed the same task over and over and was responsible for just one small part of the entire manufacturing process. While this kind of production still exists where labor is cheap, it no longer makes sense in many parts of the United States. Instead, companies are investing in sophisticated equipment, reducing the number of workers, and giving their remaining employees more responsibility. Rather than sitting at an assembly line, laborers work in teams—moving around the plant floor, performing a variety of tasks, and often dealing with the total manufacturing process.

Because workers must perform more complex and varied tasks, training has become a critical part of the work process. Most new manufacturing facilities include training areas, where existing as well as new employees learn the latest techniques and skills. Continual learning is now a key element of the working world. Snow's firm, for example, is finishing a training center for Philips Plastics, a longtime client, that brings together training, new-product development, an manufacturing. While such functions may not, at first glance, seem belong together, companies are finding that old distinctions often g in the way of innovation. As a result, walls are figuratively (and so times literally) coming down. "The higher level of responsibility ar trust given to workers must be reflected in the architecture," says Snow. "So you're seeing factories that are more open, with more su- light and more shared spaces like break-out rooms for managers a workers to use together."

Smaller is better

Keeping managers in direct contact with workers is affecting the s of factories as well. For example, Philips Plastics limits the size of factories to 200 employees, says Snow. Instead of expanding a faci and adding another layer of management, the company would rath build a new factory and keep its management structure lean. In th past, storage space was a major component in almost every factor Today, corporations emphasize "just-in-time" manufacturing, in w materials arrive at the factory right when they are needed and ar shipped out as soon as possible. With inventory reduced to a minimum—and storage seen as a luxury—the warehouse compon of many factories is now kept as small as possible.

While much about the manufacturing process is changing, many co panies remain in old industrial locations. To upgrade their images reflect modernization happening inside the factory, some compani are paying more attention to the public face of their facilities. For example, the giant chemical company Pfizer has been revamping sprawling manufacturing campus in Groton, Connecticut, over th few years. Following a master plan and designs prepared by Cent- brook Architects and Planners, Pfizer has reorganized vehicle circulation to eliminate traffic bottlenecks and moved various fun- tions around to bring order to a collection of buildings that had gr

ıs manufacturing changes, the role of the architect s evolving from the giver of form to someone who ntegrates design with the industrial process.

phazardly during the last five decades. Some buildings on the npus date from the First World War, when they served as the perty Ship Yard, and by 1989 they looked a bit ragged. So an portant aspect of Centerbrook's designs is to create a new identity the complex—one that would project a more modern face to the blic. To that end, the architects designed a new front door to the npus that includes a main gate and automobile court defined by a rving steel-frame structure (opposite right). A new color palette of ge buildings with white elements such as pipes and tanks brings structures together visually and gives the campus a brighter, aner look.

Chicago, the architectural firm Sonoc/Hutter/Lee has helped insform an aging steel factory into an attractive industrial campus pposite left). Part of the city's efforts to keep industry from fleeing, project uses steel arches, landscaping, and street furniture to egrate the complex with its upscale residential and commercial ighbors. Paid for by two companies that have operated on the site more than 100 years—A. Finkl & Sons, a producer of custom steel rgings, and A. Lakin and Sons, a tire recycler—the project involved sing one street to general automobile traffic, while inviting the blic to walk through the area and learn about the industrial dis- ct. In addition to designing the outdoor spaces and creating a new blic identity for the district, the architects also designed a new ipping facility on the campus and renovated several of the old ildings for industrial and training uses. "This partnership of resi- ntial, commercial, and industrial interests has aided in the success all participants, and, therefore, the neighborhood and city at ge," says architect Scott Sonoc.

some fields, technology has changed manufacturing so much that definitions of what is an industrial facility hardly apply. For ample, if Henry Ford were to walk into Sega of America's product-development facility in Redwood City, California (the heart of Silicon Valley), he would have a hard time figuring out where the manufacturing is done (below left). Filled with "whiz kids" tapping away at computers, playing music in studios, and testing the latest video games, the place has no blue-collar workers, punch-clocks, or assembly lines. Although it looks like the offices of one of those hip new advertising agencies, the Sega facility actually develops, tests, and produces the master CDs for the company's popular video games. It may not be a steel mill, but as architect Lisa Bottom explains, it produces "America's main export—entertainment."

An unstructured place for producing computer-age products

Bottom's firm, Bottom Duvivier Architects, designed the facility in an existing two-story tilt-up building and worked hard at creating an unstructured, slightly raw, but always playful environment. The complex includes a video-production facility, recording studios, compact-disk press labs, offices, conference rooms, and a training area. Stocked with games still in development, the reception area doubles as a testing lab.

Like more and more companies these days, Sega understands the need to reduce the time it takes to develop new products and to be able to adjust to market changes. As a result, flexibility is increasingly stressed in the design of industrial facilities. "With product-cycle times getting shorter, disposability is a key," states Bottom's partner, John Duvivier. Unfortunately, this is as true for a company's architecture as it is for its products. With change a given, many companies are no longer willing to invest in buildings that will last. In this kind of climate, the role of the architect is changing. Less a giver of form, the architect today must integrate space with process so that the entire facility works as efficiently as possible. Part of the challenge for architects will be showing that good design pays off in the industrial workplace. *Clifford A. Pearson*

F.W. Dodge Contract Award Data
Manufacturing Buildings

Year	Millions of Dollars	% change	Millions of Sq. Ft.	% change
1980	9,162	18.0	220	10.6
1985	8,133	-11.2	165	-25.0
1990	8,384	3.0	128	-22.4
1991	8,290	-1.1	100	-22.1
1992	8,889	7.2	95	-5.2
1993	9,011	1.4	110	16.3
1994	10,327	14.6	139	26.8
1995	10,825	4.8	150	7.6

The Finkl project in Chicago (opposite left) and the Pfizer campus in Connecticut (opposite right) retain old buildings. Sega's facility (left) points to the future.

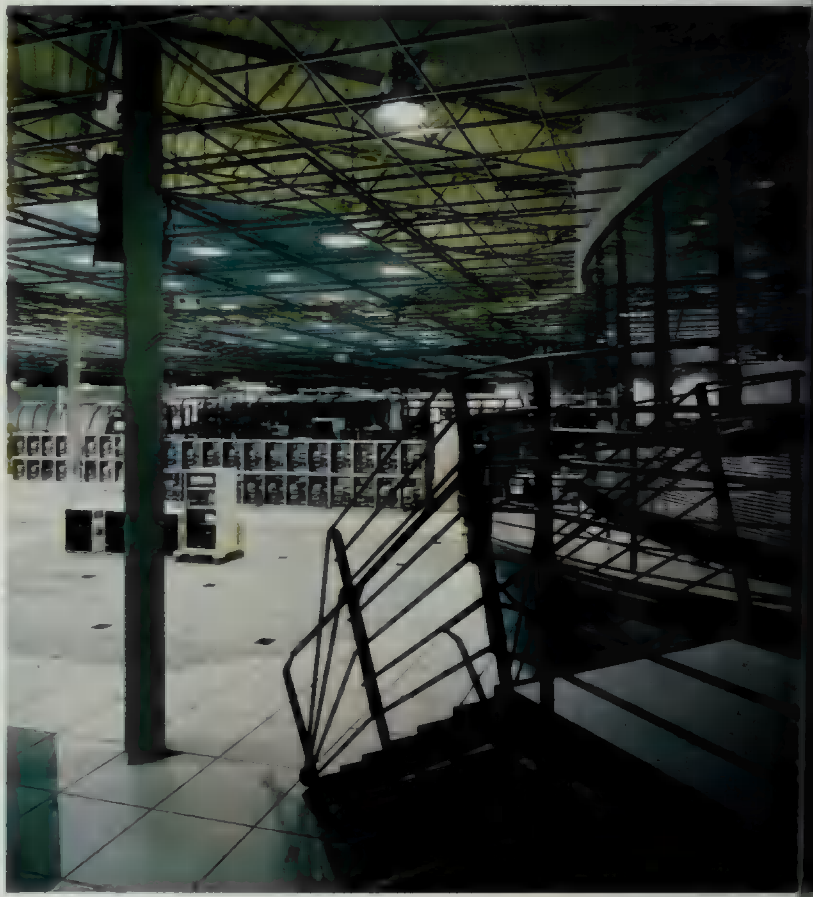
Powered by the economy's turnaround and pent-up demand, manufacturing construction registered significant gains in both 1993 and 1994 (chart).

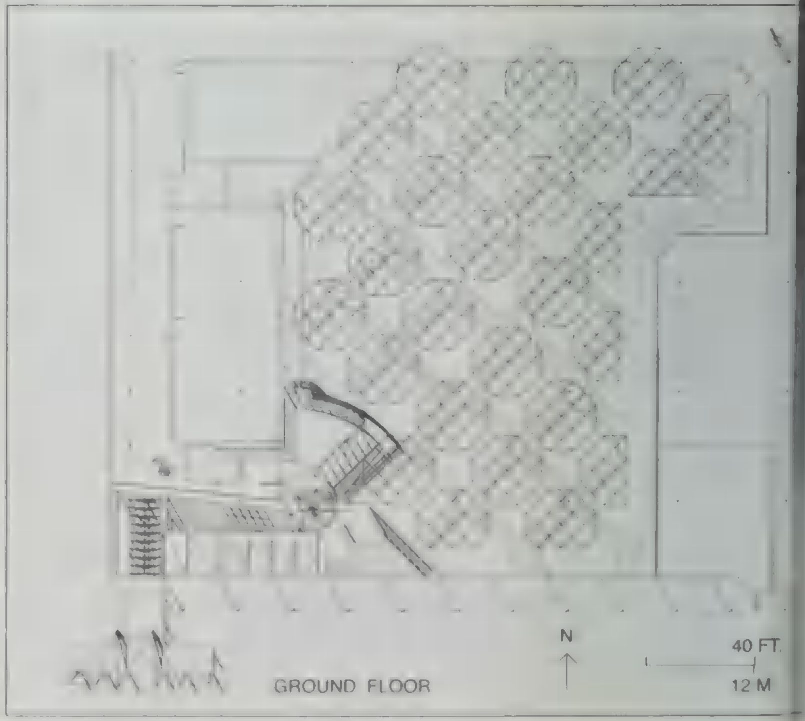
Motorola Customers Center for Systems Integration

Schaumburg, Illinois
Holabird & Root, Architect

In its renovation of 36,000 square feet of factory space at Motorola's sprawling campus outside of Chicago, Holabird & Root transformed a generic industrial building of the 1960s into a sleek, crystalline facility that projects technological sophistication. A hybrid facility where Motorola performs the final assembly, testing, and demonstration of very expensive, custom-designed communications systems (such as 911 emergency telephone networks), the building must accommodate factory workers. Motorola sales executives, and the top government officials w purchase such electronic equip ment. An old warehouse wasn’ the place to impress customers who might end up spending $1 million a pop. So the architects added a metal canopy above a new glass entryway and insert an angled, oxidized metal wall

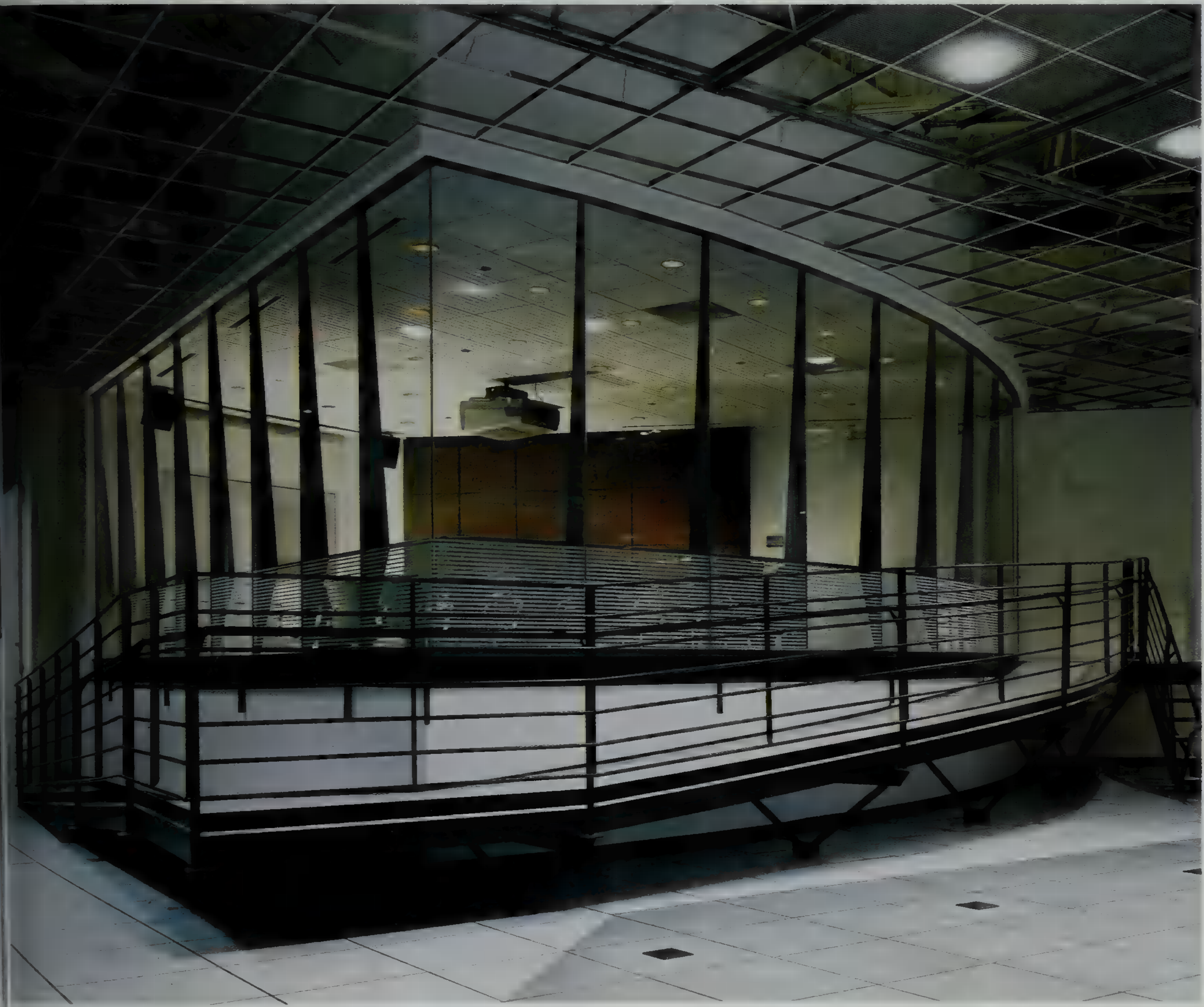
© *Jon Miller/Hedrich-Blessing photos*





ling to a glass-ceilinged
nda (opposite left). Two con-
nce rooms are entered from
rotunda—a 30-seat space
one glass wall, and a smaller
n raised five feet above the
ory floor and wrapped on two
s by glass-and-metal-finned
ls. Both conference rooms
rlook the manufacturing area,
ustomers can watch their
ems being assembled and
ed. By projecting one conference room into the factory space (below and opposite right), the architects were able to integrate the key components of the program—reception, demonstration, and manufacturing—says Tod Desmarais, project designer. In terms of the manufacturing process, the new design lets Motorola work more than twice as fast as it did in the past. A module system of work sites on the factory floor provides plenty of power sources for machines to plug into, as well as efficient circulation around each assembly area. And by turning work modules at a 45-degree angle to the building's existing column grid, the architects were able to fit four extra work sites into the same space. Remarkable too is the rapid schedule for the project: four months from beginning of design to end of construction. *C.A.P.*

Credits
Motorola Customers Center for Systems Integration
Schaumburg, Illinois
Architect: *Holabird & Root—Gerald Horn, partner-in-charge; Tom Meyer, project manager; Tod Desmarais, project designer; Khatija Hashmy, project architect; Patricia Sicha, interior designer*
General Contractor: *Rudolph V. Schuh Co.*

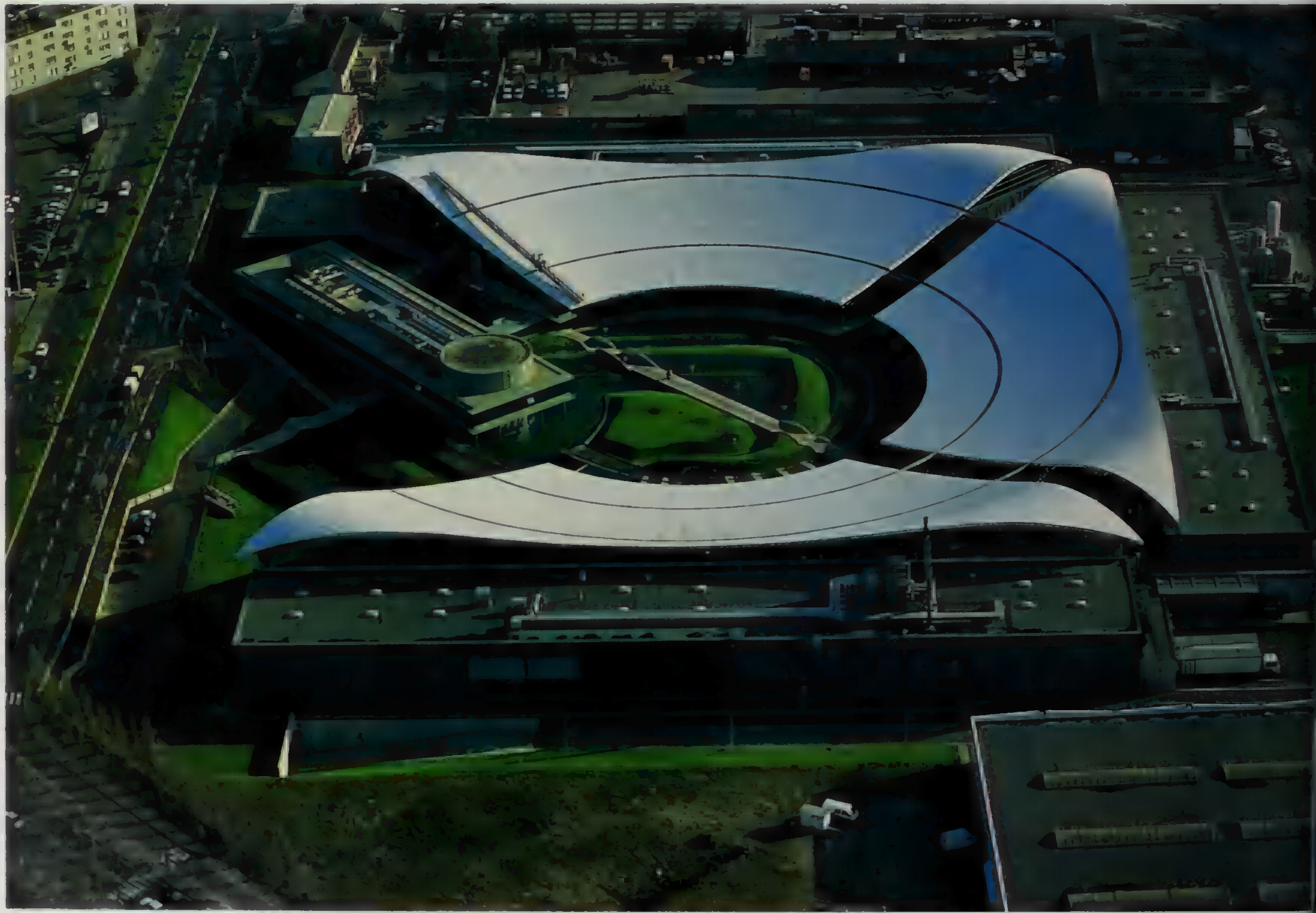


Usine L'Oréal

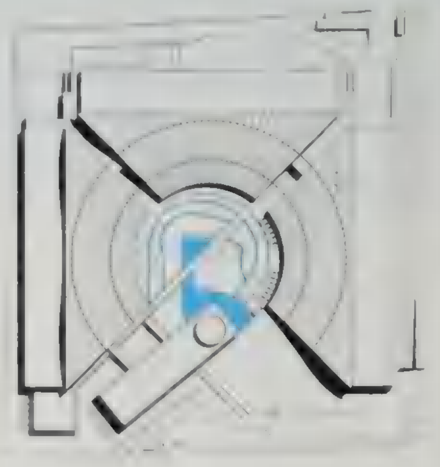
Aulnay-sous-Bois, France
Valode & Pistre et Associés, Architect
Ove Arup & Partners, Structural Engineer

Located at Aulnay-sous-Bois, northeast of Paris and not far from Charles de Gaulle airport, this factory and administration headquarters is an international showcase for L'Oréal cosmetics. The bold architectural form and precise detailing of the 325,000-square-foot structure express the company's stated commitment to quality at all levels. From the sweeping roof that curves in two directions to the rolling earth berms and winding reflecting pool that animate the central garden, this project distinguis itself from the boxy factories o yesteryear. The Paris-based fi of Valode & Pistre et Associés, which has designed industrial facilities for Renault, Shell, an Apple France, won the L'Oréal commission in a design compe tion by using the image of a three-petaled flower floating above the ground. The flower-

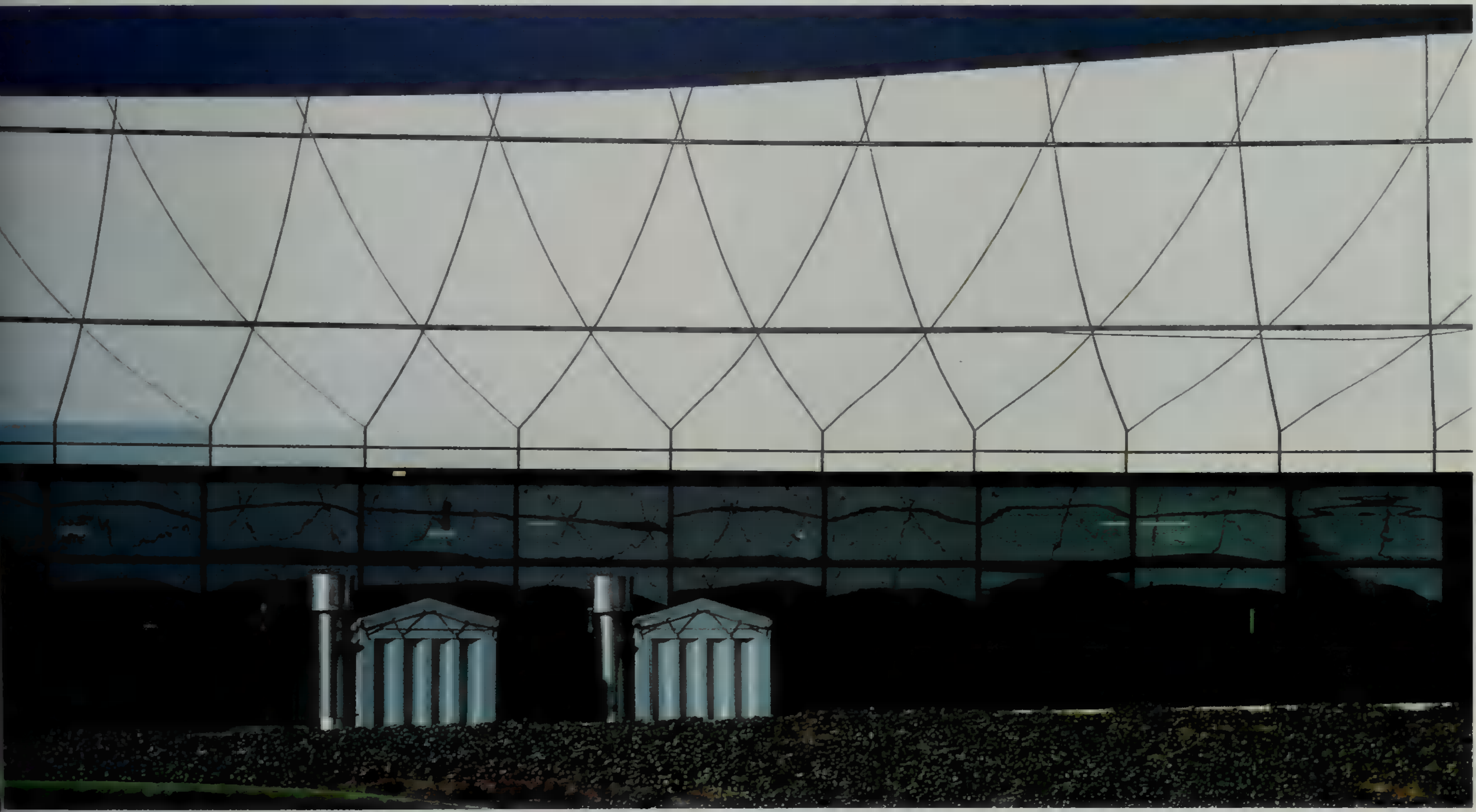
© Valode Pistre photos

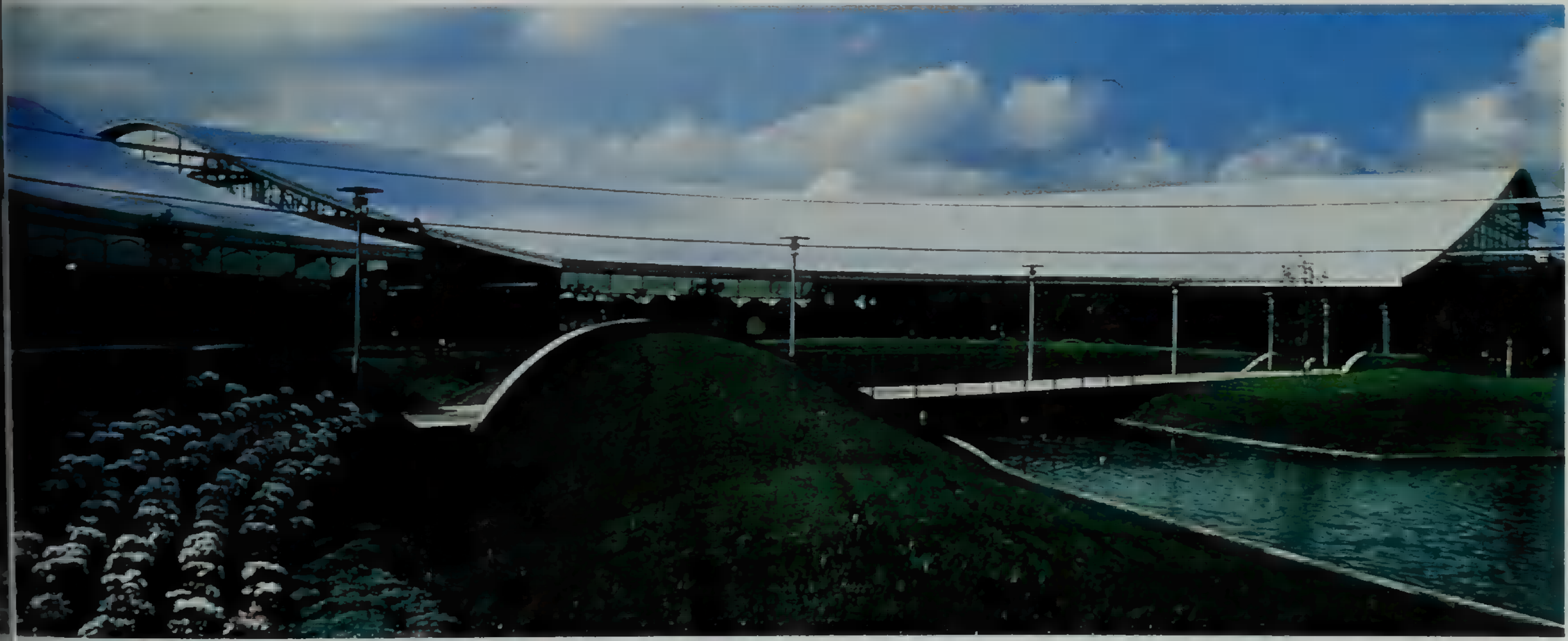


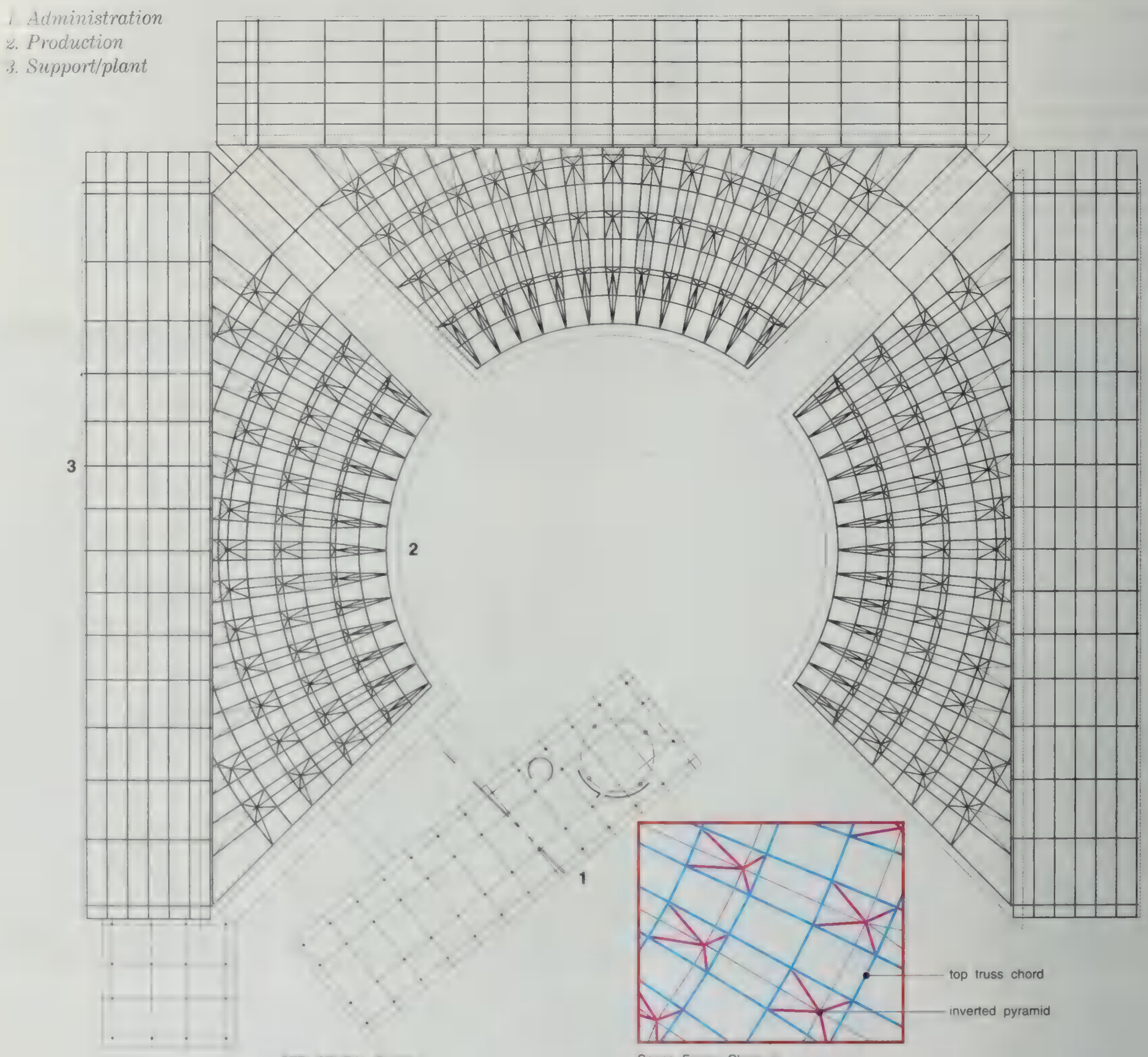
Built on a tight 432,000-square-foot site on the outskirts of Paris, the 325,000-square-foot manufacturing and administration complex turns away from its suburban context and focuses on a rolling artificial landscape that echoes the great curves of its roofs. Abstract in its design, the central garden (opposite bottom) creates a playful environment with berms, flowers, a snaking pool, and a narrow bridge.



arden metaphor appealed to pany executives, who saw it way of referring to a tradi- al ingredient of some netics, while at the same time ressing faith in the latest nology. Each petal is ■ ving metal roof draped over a -foot-by-430-foot clear-span ce frame. Each sweeping roof ers one of the factory's three duction units, while flanking, -roofed structures enclose plant, storage, and support spaces. Because the trend in manufacturing today is to update and change processes frequently, the client needed column-free interiors that would be as large and flexible as possible. In addition, it wanted the building to have "a connected experience," where all employees—managers and workers alike—would feel they were part of the same team, says Richard Hough, the director-in-charge of the project for the structural engineer, Ove Arup & Partners. The project's sweeping roofs and central outdoor courtyard, visible from almost the entire complex, are two devices the architects used to create a common sense of purpose among L'Oréal employees. As an office facility, the rectangular administration building breaks from the radial geometry of the manufacturing structures and juts into the circular courtyard. A curving, glass-walled presentation room on the ground floor of the administration building looks out onto the garden and the rolling form of the production units. Working with Arup and the late engineer Peter Rice on the superstructure, Valode & Pistre designed a tubular space frame of radial and circumferential Vee trusses for the flower-petal roofs. To add a

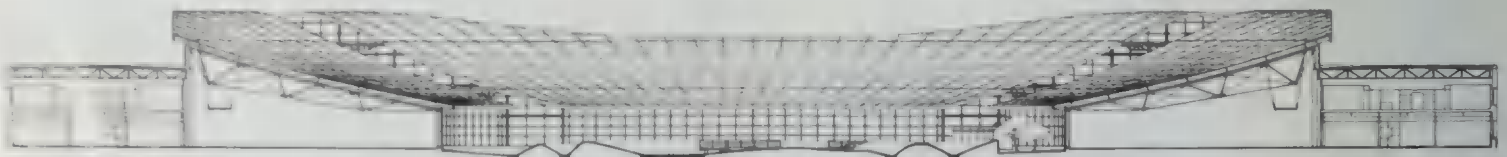




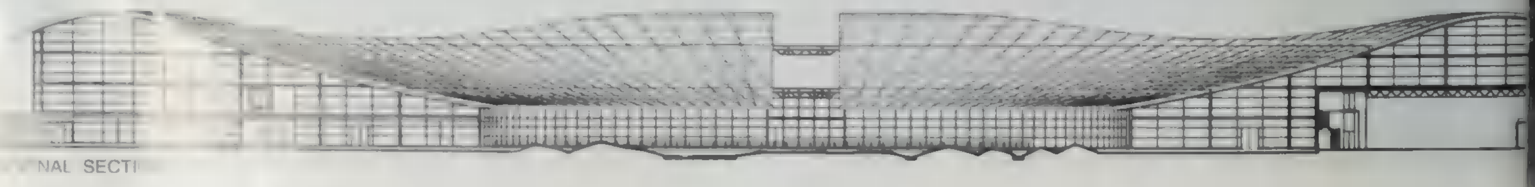


STRUCTURAL PLAN

Space Frame Close-up



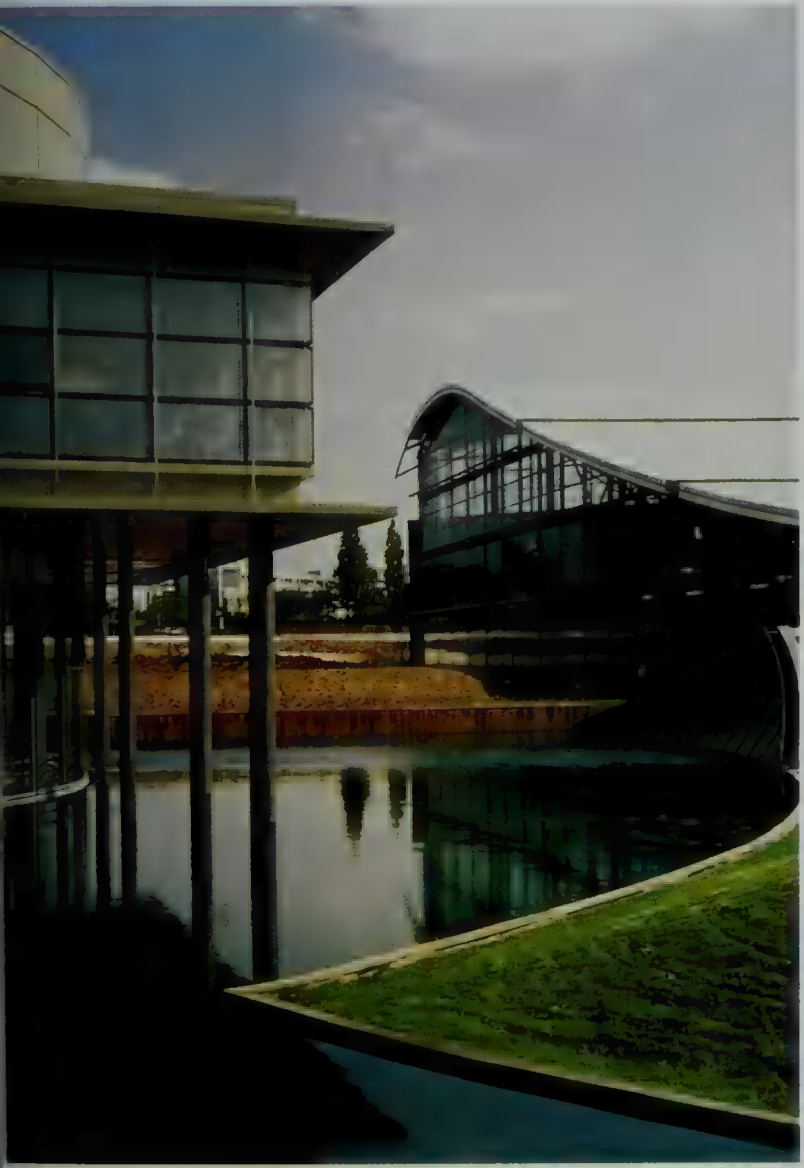
RANSVERSE SECTION

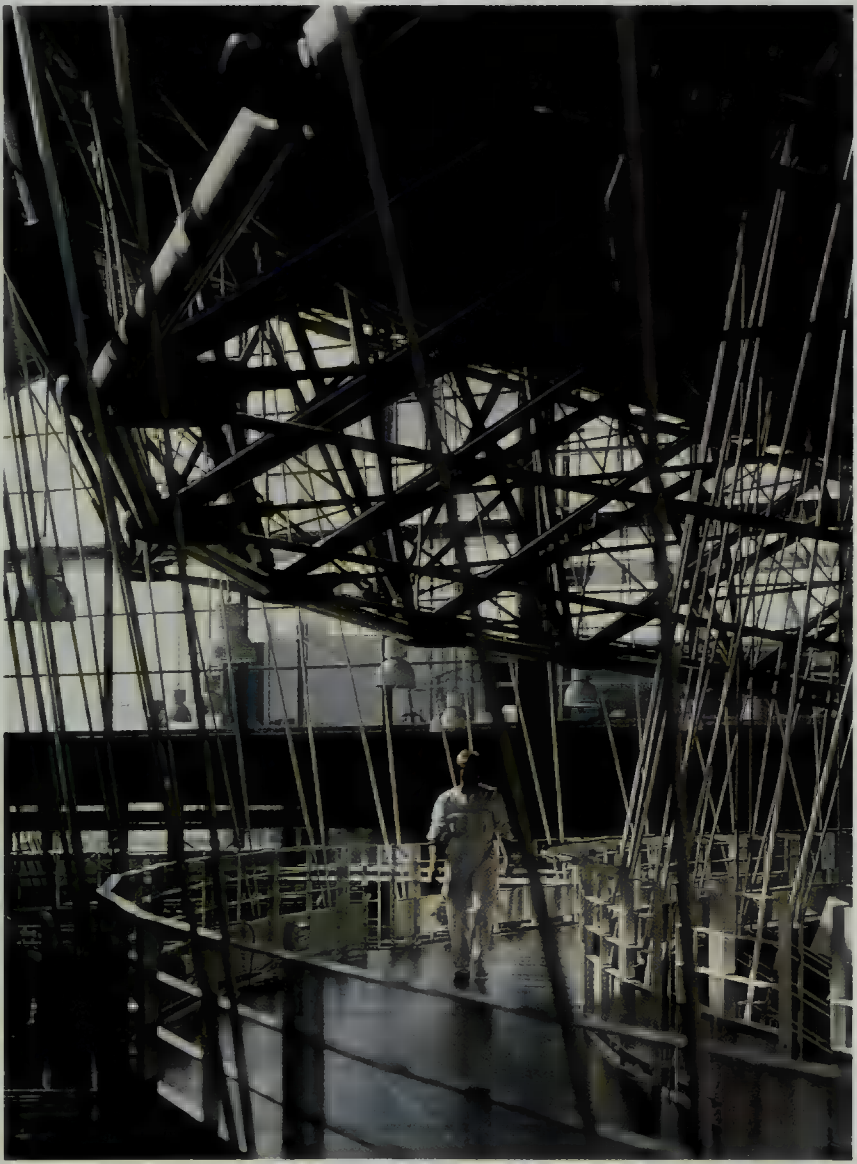


NAL SECTI

se of scale and rhythm to the
ge production spaces under
roofs, the designers used
erted four-fingered pyramids
unctuation marks in the
ce frame (see close-up
wing, opposite). Clad in white
minum, the roof itself is an
n-jointed panel system rest-
on an exterior purlin grid
t allows water to drain
ween the panels. To clean and
ntain the roofs, the architects and engineers designed an access bridge that moves along curving rails set into the roof panels. The bridge is stored off the roof, out of sight. With its dramatic roofs, bold geometry, and Zen-like circular garden, the Usine L'Oréal at Aulnay-sous-Bois shows how architecture can break the stereotyped images of factories and make these facilities special places in which to work. *C.A.P.*

Credits
Usine L'Oréal, Aulnay-sous-Bois Paris, France
Owner: *L'Oréal*
Architect: *Valode & Pistre et Associés—Frank Privé, project chief; Eric Schoebel, Cécile Fridé, Antoine Rebière, Bruno Valode, project team*
Engineers: *Ove Arup & Partners (structural)—Peter Rice, Richard Hough, Mike Banfi, project team; Setec Batiment (substructure)*
Landscape Architect: *K. Gustafson*
General Contractor: *Bouygues*





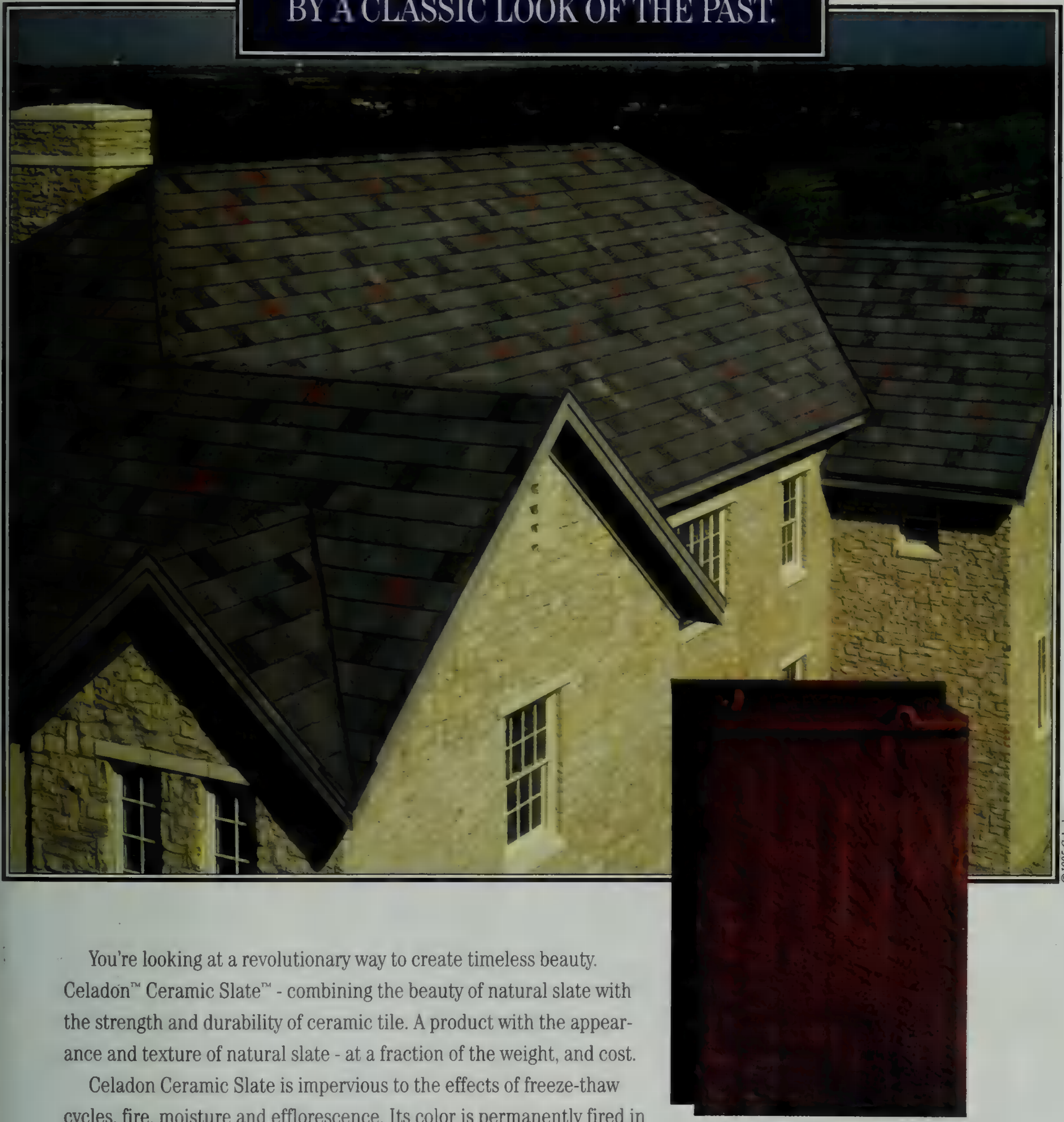
The architects and engineers used structures and materials to make the factory's interior as light and open as possible. For example, the curtain wall at the building's gable ends works with the bulging form of the roof to bring sunlight into the production area (left and above left). A second-story walkway is suspended from the roof and overlooks the manufacturing floor (above right).

CALL FOR ENTRIES

RECORD HOUSES 1996

The editors of ARCHITECTURAL RECORD announce the 41st annual RECORD HOUSES awards program. This program is open to any registered architect; work previously published in other national design magazines is disqualified. Of particular interest are projects that incorporate innovative programs, building technologies, and use of materials. There is an entry fee of $15 per submission; please make checks payable to ARCHITECTURAL RECORD. Submissions must also include plan(s), photographs (transparencies, slides, or prints), and a brief project description bound firmly in an 8-1/2 by 11-in. folder—and be postmarked no later than October 31, 1995. Winning entries will be featured in the 1996 RECORD HOUSES. Other submissions will either be returned or scheduled for a future issue. If you would like your entry returned, please include a self-addressed envelope with appropriate postage.

Submissions should be mailed to:
Karen D. Stein
RECORD HOUSES
ARCHITECTURAL RECORD
1221 Avenue of the Americas
New York, New York 10020



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ERS *continued from page 4*

with ADA. We encourage ADA compli- by writing articles, providing technical tance, and conducting educational semi- . We are more than willing to assist you oviding accurate information concerning design issues and promote full aware- of ADA requirements.

A. Beasley, AIA
aging Principal
adigm Design Group

HITECTURAL RECORD *responds:*
arding Mr. Catlin's correction about t ADAAG being adopted by the depart- ts of Justice and Transportation in 1991, s given other information via the U.S. artment of Justice Civil Rights Division. Justice Department is still reviewing proposed rule that would adopt the ADA essibility Guidelines as the ADA Stan- ls for Accessible Design in new truction and alterations for government lings, not now covered by ADAAG.

clarification Mr. Beasley has stated in etter regarding his participation on the CB was not stated during these conver- ons. *Katherine Kai-sun Chia*

statement that ADAAG standards are recommendations was an editing error. However, the degree to which ADAAG guidelines apply is subject to much confusion. In a conversation with Mr. Catlin, he indicated that ADAAG is the standard design guideline to be used. When a local code has elements that are more stringent than ADA, the designer should follow the local code. In other words, since most local codes have accessibility provisions, an architect is required to adhere to both ADAAG and the local code.

The images shown with the story did not state, but perhaps implied, that the facilities were covered under ADA. Their purpose was to show innovation in the provision of accessible elements.

The United States Architectural and Transportation Barriers Compliance Board offers technical assistance, with its primary expertise in the interpretation of ADAAG:
- 202/272-5434 (voice)
- 800/USA-ABLE (voice and text telephone)
- 800/993-2822 (TTY for people with hearing or speech impairments)
- 202/272-5447 (fax)
- 202/272-5448 (electronic bulletin board via modem)

It is preparing a guide to ADAAG. The Justice Department handles ADA complaints and can give guidance on questions of what is regarded as "readily achievable," and so on: 800/514-0301 (voice), 800/514-0383 (TDD). It also offers new technical documents on the design of specific complying elements, like accessible routes. *Editor*

Looks Like a Duck?

After looking at the "residences" in Record Houses 1995, one wonders where all this nonsense will lead us. Put these houses all together and we have a strange zoo of rare one-of-a-kind animals unable and unwilling to communicate with one another, all doomed to extinction. Turner Brooks's house may not be a duck, but it certainly resembles a dog complete with upright tail [RECORD, April 1995, page 93]. The telling photograph of the Frank Israel house plopped down on the hillside with other non-look-alikes might be mistaken by 95 percent of the public as a just-after-the-earthquake shot.

William Hamilton Roehl
Architect
Noank, Connecticut

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[illegible] *continued from page 4*

Art Institute of Chicago includes scale models of four of Goff's unrealized projects, photographs, notes, and ephemera. Designed for the Institute by Bart Prince. Call 312/443-3600 for more details.

September 8 to October 28

An exhibition of "The Architectural Drawings of Herzog and DeMeuron" at the Forum for Contemporary Art, St. Louis, will show 40 drawings of the Basel, Switzerland-based architects, Jacques Herzog and Pierre de Meuron. Concurrent with the exhibition will be a showing of "Construction Intention Detail," featuring drawings and photos of projects by three other Swiss architects and two small models by Herzog and DeMeuron at Washington University School of Architecture. Call 314/535-4860 for more information.

Through September 19

"An American Landscape: The Art and Architecture of Charles A. Platt" is on exhibit at the Octagon, Washington, D.C. Call 202/626-7564 for details.

October 6-9

"White Chimneys" exhibition in a Philadelphia Victorian Gothic home showcases the work of more than 30 interior and landscape designers. Call 215/247-8191 for details.

October 6-9

The annual International Marble exhibition is to be held in Verona, Italy. Call 011/39-45-829-8282 for more information.

October 21-22

A seminar on "The Ornament of Classical Architecture" will be held at the Institute for the Study of Classical Architecture, New York Academy of Art. Workshops and demonstrations will also be held during the two-day seminar. Call 212/570-7374 for more information.

November 1-3

Interplan 1995 (formerly Designer's Saturday) moves this year to the New York Coliseum, where 550 exhibitors will display interiors products for 10,000 attendees. Call 800/950-1314 for details.

Competitions

- Submittals for the Professional Services achievement awards are due Aug. 4. Call PMSA at 704/521-8890 for entry rules.
- "Unbuilt Architecture" competition submissions are due Sept. 26. Entry fee is $50 for each submission. Call Boston Society of Architects, 617/951-1433 ext. 232, for details.
- Society of American Registered Architects invites architecture students to submit work done in conjunction with school or independently. Entrants must register by Oct. 6, a submit projects by Oct. 13. Call SARA at 708/932-4622 for details.
- Shinkenchiku Residential Design Compe tion entries, which will be judged by Jean Nouvel, are due October 18. Contact Shinkenchiku-sha Co., Ltd., 31-2, Yushima chome, Bunkyo, Tokyo 113, Japan.
- National Commercial Buildings Council the National Association of Home Builders calling for entries for its 1996 awards of excellence competition. Two awards divisi cover small- and large-scale projects, inclu ing the categories of urban renewal, recreational facilities, office buildings, ret projects, historic rehabilitation, institution commercial interiors, and medical facilitie among others. Submission deadline is Aug 25. Call 800/368-5242, ext. 455 for entry brochure and other information.
- A Linoleum Flooring Design Competitio sponsored by Forbo Industries, is accepti projects designed using its Artoleum floor covering product. Deadline for submission Dec. 31. Grand prize is a five-day trip to Holland for two; second prize is a $1,500 c award. A student award of $1,000 will also made. Call 800/842-7839 for entry forms a rules. ■

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3. A whole other thing

mpted by population demo-
phics (we're all getting older),
essibility improvements initi-
d to comply with Americans
 Disabilities Act guidelines,
 ongoing revisions in limited-
ess elevator codes, Dover
vator has established a new
sidiary, Dover Accessibility
ducts (D.A.P.), to manufac-
e and market residential
ators, stair chairs, and plat-
n-type wheelchair lifts.

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 elevator (model 405H, not
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es found in Dover's commer-
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sors, that are said to provide
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g floor stops. Standard
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g, illuminated cab and hall
h buttons, emergency light-
 and battery-operated backup
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The Model 180 stair chair (top, right) has an unusual battery-powered, self-contained traction drive, using polyurethane wheels to grip both sides of dual, smooth-surfaced ("toothless") steel guide rails. The 300-lb-capacity unit can handle straight runs and curves, and can be mounted on either the inside or the outside wall of staircases. A hand-held wireless remote calls the lift from any stop. An exterior-use configuration may be specified. For public areas, D.A.P. platform lifts (bottom right) are also self-driven, powered by batteries that recharge automatically at each terminal landing point. Units fold, and can be parked away from the stair run if there's enough space by the landing. Designs permit entry from front or side; lifts can be ordered for straight and curved runs, and for exterior use. On-line CAD help will be available. 800/994-4327. Dover Accessibility Products, Inc., Memphis, Tenn. ■

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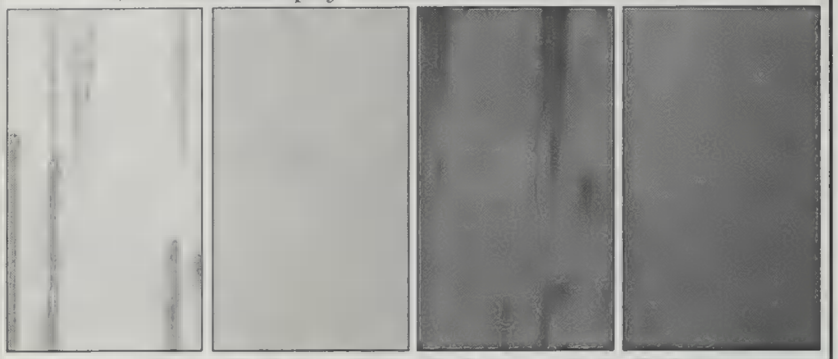
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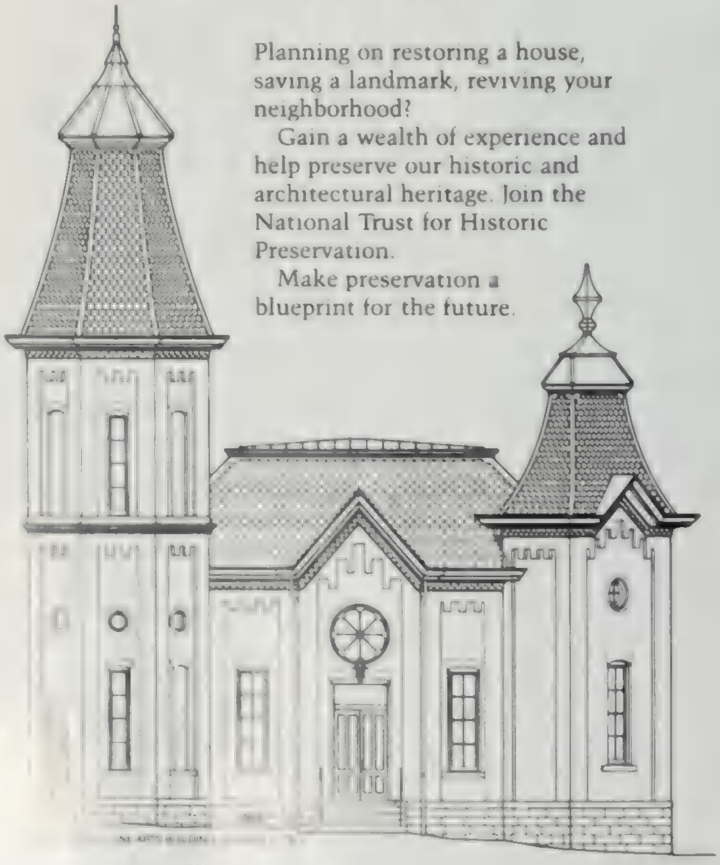

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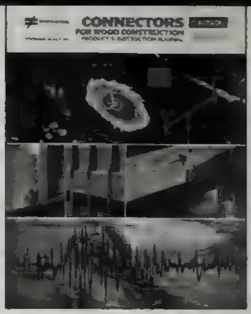
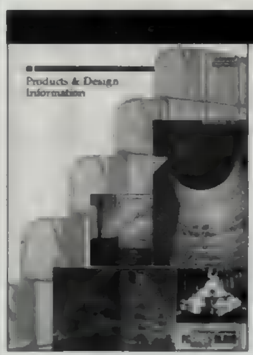


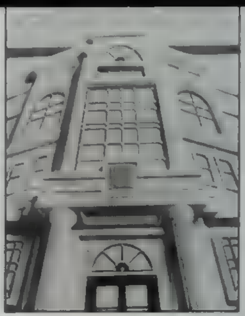
400. Cavity-wall EIFS
A 12-page catalog illustrates how Infinity PE (pressure equalized) and MD (moisture drainage) systems provide a weatherproof exterior envelope in environments with high wind pressures and humidity. The Infinity program offers critical-detail design help, installation oversight, and tested performance. 800/556-7752. Dryvit Systems, West Warwick, R.I. ■

401. All sorts of connectors
A 76-page catalog gives loads and configurations for all types of wood to-wood, wood-to-masonry, and wood-to-concrete connectors, anchors, hangers, and holdowns. A new custom program makes gusse plates and ornamental shapes up t gauge thick from an architect's CA drawings. 800/999-5099. Simpson Strong-Tie, Pleasanton, Calif.



402. Designing with glass block
A design guide shows architectural uses of glass block and brick, and features new products such as endcurve and endcap shapes, unusual sizes in the Decora pattern, and block for high-security settings. Seismic and wind-load data included; specification guidelines and an architectural binder are available. 800/992-5769. Pittsburgh Corning, Pittsburgh.

403. Solid-surface guide
A colorful product-data folder hig lights commercial, retail, food-service, health-care, and residenti applications of three different Avo materials: a Class I-label product, thermoformable Formstone, and d orative Class III sheets in a wide color range. An eight-page *How t Specify* booklet is included. 800/4/ AVONITE. Avonite, Inc., Belen, N



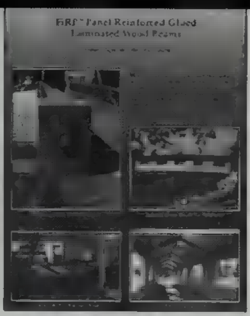
404. Vinyl-window line
Made with an acrylic-modified, UV-stabilized vinyl described as colorfast, dent resistant, and corrosion proof, Aurora windows have a multichambered, extruded frame. Product catalogs give glazing options and sizes for single-hung, awning, rolling, and picture units, as well as patio doors and special-shape windows. Acorn Window Systems, Detroit.

405. Curtain walls/entrance
This maker's 1995 catalog provid complete descriptions and details architectural curtain-wall, door, s front, and window product lines, well as newly acquired RotoSwin automatic entrances. An enclose specifications chart references al systems. 800/221-4169. EFCO Co Monett, Mo. ■

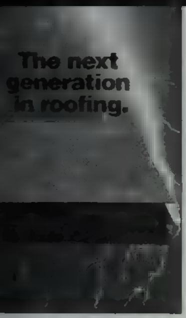
* *Product Data on CAD disk*

For more information, circle item numbers on Reader Service Card.

. Decorative cast stone
pabilities packet illustrates cast-e installations across the vest, listing projects and the gn architects responsible. Case ies showcase large-scale cast els with original graphics, custom age, and precisely color-matched oductions of terra-cotta details. 967-2076. American Artstone Co., Ulm, Minn.

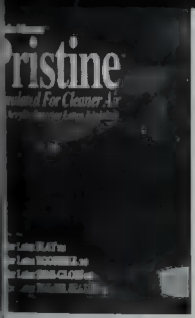


407. Reinforced glulam
A catalog describes how new FiRP Glulam combines the compressive strength of wood with greater tensile strength provided by synthetic-fiber reinforcement to increase the design capacity of the beam, allowing longer spans and greater loads for a given member. ICBO approval is pending; fire- and load-test data is available. Timberweld, Billings, Mont.



. Best-of-both roofing
w system, GAF's CompositeRoof id to combine the strength of rglass-reinforced built-up roofing the elongation and flexibility of eroid modified-bitumen mem-es to achieve a superior strain-gy rating. A brochure gives gn and test data on the multiple-orch-or-mop roof. GAF Materials ., Wayne, N.J. *

409. Fossilized limestone
A capabilities booklet describes different types of Solnhofen stone, extremely durable limestones found in a single German quarry. Dramatic installation photos show the stone as flagging, paving tile, and cladding. Dendrites and other inclusions give the stone a unique appearance. 415/647-3088. Solnhofen Natural Stone, Inc., San Francisco.



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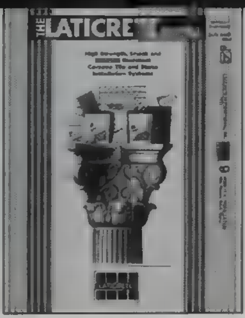

411. Tile and stone materials
A 16-page architectural catalog describes how Laticrete installation products are designed to perform as a system. Cutaway illustrations and technical drawings detail tile and stone on exterior and interior walls and floors, and used as an exterior cladding. All data available in CAD format. 800/243-4788. Laticrete International, Inc., Bethany, Conn. ▪

duct Data on CAD disk

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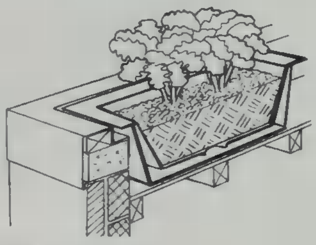

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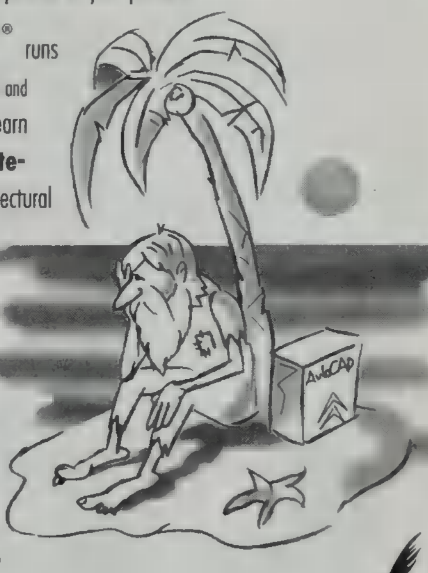
However, ArchiCAD® runs ***FAST*** on Power Macintosh (and 680x0 Macs and Windows), features one of the **easiest** to learn and use interfaces of any CAD program, **integrates** the most important tools for architectural design, and, according to the editors of *MacUser* Magazine, is **"THE BEST CAD SOFTWARE"** of 1994. It even reads and writes AutoCAD **DWG** files.



From now until June 30, 1995, you can **trade up** your AutoCAD Macintosh to ArchiCAD, and receive a discount of **$1000 *PLUS*** a **$1000** coupon for two days of training from any Certified ArchiCAD Trainer*.

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* Trade up valid for AutoCAD for Macintosh purchased before 12/31/94 when purchasing ArchiCAD for Macintosh first sites. Original AutoCAD disks, manual covers, and proof of purchase required.
ArchiCAD is a registered trademark of Graphisoft Software R&D, Ltd. AutoCAD is a registered trademark of, and DWG is a trademark of, Autodesk, Inc.

Circle 25 on inquiry card

Face it, they're not teaching this stuff by the book anymore.

Used to be, the only way to find detailed information about a construction product was to sift through a stack of books and binders. It may have taken a while. And it took even longer if you wanted to compare it to another product. In another book. On another page.

These kids have no idea what that was like. Because right now, Sweet's is helping future construction professionals at Auburn University and 400 other architecture, design, and construction schools learn how to find, compare, and select materials using the SweetSource CD.

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Which means they have instant access to all the [illegible] product information they need, including [illegible], color photographs, and CAD drawings.

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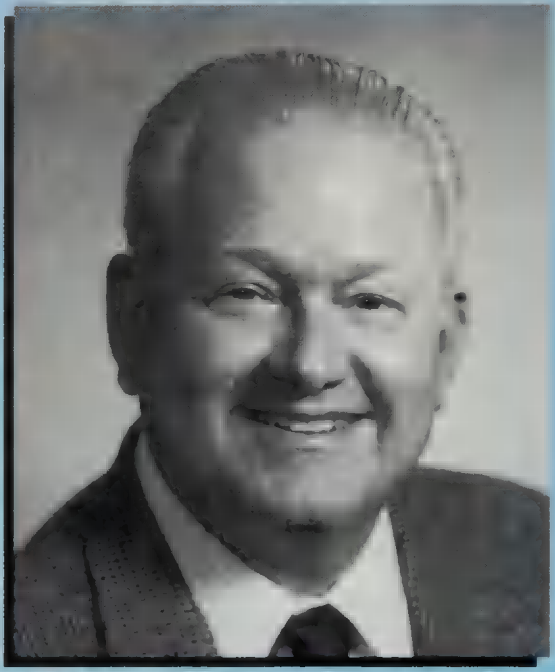
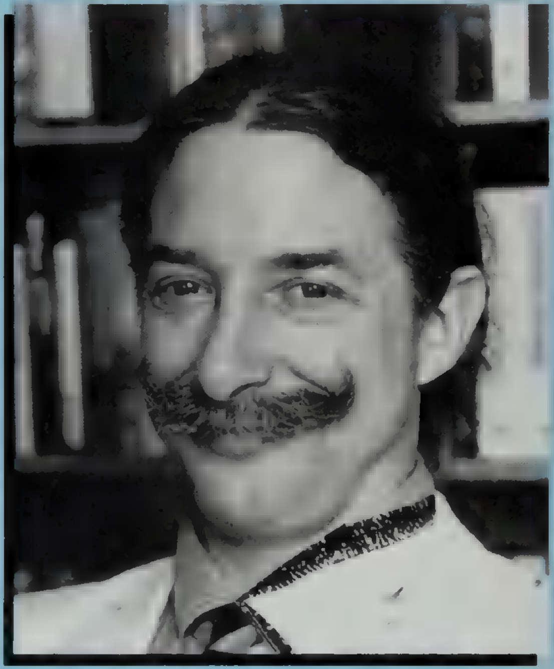


Leland R. Kaiser, Ph.D., Futurist and Visionary



Patch Adams, M.D., Founder of the Gesundheit Institute

"New Design Requires a New Mind Set."

—Leland Kaiser, Ph.D.

Leland Kaiser, Ph.D., and Patch Adams, M.D., will be among the more than 30 speakers at the healthcare and design industry's most impressive meeting of the minds. As you look through their eyes and listen to their provocative voices, you'll discover new strategies, skills, and resources that will shape the future of healthcare design. And you'll learn about the many surprising ways in which superior design is an investment that can actually improve your bottom line.

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erials and other products shown in this
th's feature articles, RECORD *has asked the*
itects to identify the products specified.

es 56-63

tive Discovery Museum, Chattanooga, Tenn.
H. Skolnick Architecture+Design Partner-
Architects and Exhibit Designers
ed masonry units: Burns & Russell Co.
ctra-Glaze). Composite cladding panels: A-T-I
cobond Technologies, Inc.). Curtain walls and
ance: Arch Aluminum. Fixed-sash windows:
CO. Fin-supported glass wall: Pilkington Glass,
Metal roofing: Baird & Wilson. EPDM mem-
e: Versico. Pole-tops and bollards: Spaulding.
d interior doors: Mohawk Flush Doors.
ard-acting doors: Raynor. Acoustic ceilings
resilient flooring : Armstrong World Indus-
. Suspension grid: Chicago Metallic. Custom
dwork: Southeast Millwork. Paints: Sherwin-
ams Co., Stores Div. Laminates: Formica
. Track lighting (exhibits): Staff.

64-69

nsylvania Higher Education Assistance Agency,
risburg, Pa.
in Cywinski Jackson, Architect
ing: Carlisle SynTec Systems. Curtain wall,
ance, and punched windows: Kawneer Co., Inc.
ing: PPG Industries, Glass Group. Column
ding: A-T-I (Alucobond). Clay-coated brick:
-Gery Corp. Metal soffits: Hunter-Douglas.
Ceiling panels: Baker Metal. Lobby wall: Buxy Blue Limestone. Glazed demountable walls: Virginia Metal Industries.

Pages 70-79

European Court of Human Rights, Strasbourg
Richard Rogers Partnership, Architect
Curtain wall: CFEM.

Pages 80-85

Walter J. Bieneke Student Activities Village
Hamilton College, Clinton, N.Y.
Perry Dean Rogers & Partners, Architects
Standing-seam metal roof: Pulver. Green shingles: Celotex. Wood-framed windows: Kelly Window & Door Co. Landscape luminaires: Sterner. Skylight: Sunglo Skylight Products. Rolling doors: Cookson. Flush wood doors: Eggers Industries. Stile and rail doors: Christiana Millwork (custom). Lever-handle locksets: Apahouser. Acoustic ceilings: Armstrong World Industries. Paints: Benjamin Moore & Co.

Pages 88-89

Customers Center for Systems Integration, Motorola, Inc., Schaumburg, Ill.

Holabird & Root, Architect
Oxidized-metal wall: Lundstead Metal. Fabric wall-coverings: Bernhardt Textiles; DesignTex; Deepa. Glazed partition and railings: Northwest Structural Steel. Armless sofas: Vitra. Pyramid-pattern and ramp flooring: Metropolitan Terrazzo. Raised flooring: C-Tec Grand Rapids. Paints on metal surfaces: Benjamin Moore & Co. High-bay lighting fixtures: Holophane Lighting. Ceilings (conference center): Armstrong World Industries. ■

Computer-design sources

Architects cited in The Profession article "Computer Myths Exploded," pages 28-31 in this issue, work with the following CAD systems:

David Hannaford Mitchell Architect
- Macintosh PowerMac 7100, 24m RAM, 500m hard drive
- Graphisoft ArchiCAD v. 4.55

Peter John Locascio Architect
- Macintosh PowerMac 7100, 24m RAM, 500m hard drive
- Graphisoft MiniCAD 5.0.2

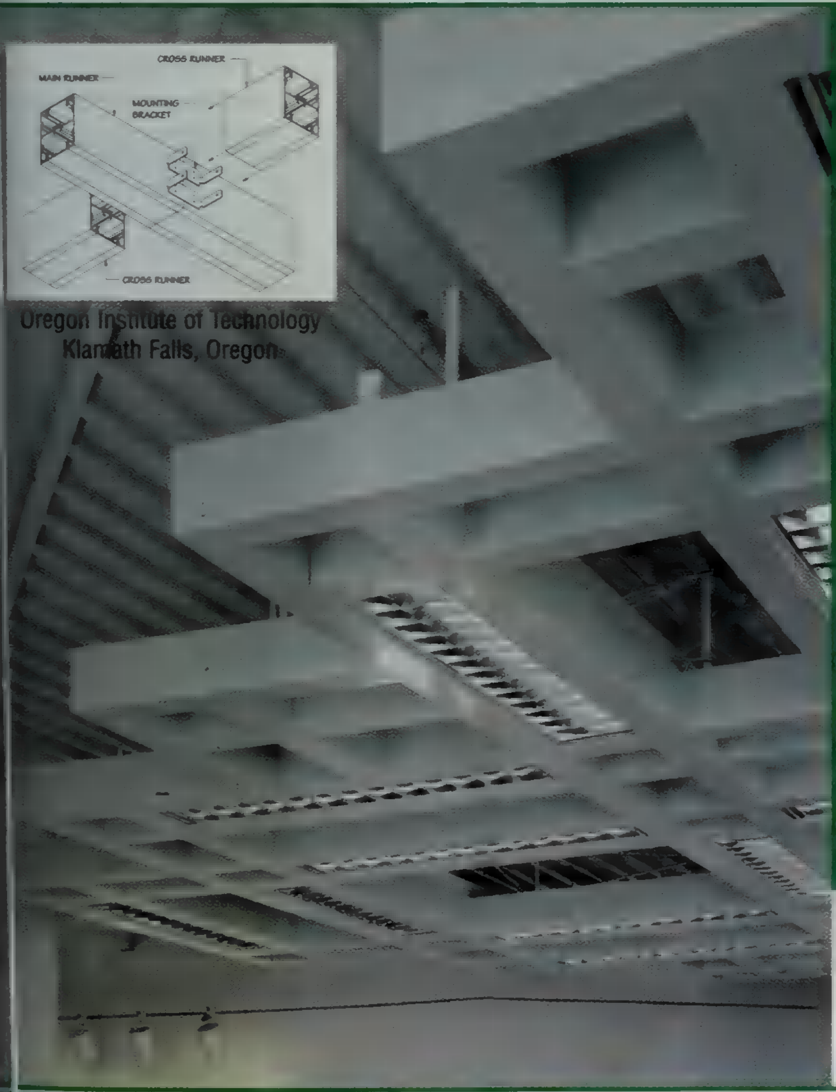
Lalire March Architects
- Macintosh, various models including PowerMacs
- Graphisoft ArchiCAD v. 4.55

Kiss+Zwigard Architect
- Macintosh PowerMac 8100/80, 64m RAM, 1 gig hard drive
- Form-Z v2.5

Bryce & Palazzola
- Principal: Compaq Concerto pen-based 486 laptop, 20m RAM. Other staff: a combination of 486- and Pentium-based PCs
- AutoCAD Release 12 ■

Correction

The image of the Euregio Office Building, a prize-winner in the computer Delineation Awards [May, p. 39], was printed upside down. RECORD regrets the error. ■



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Manufacturers' Spotlight

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Security requirements, space constraints and aesthetic considerations are a few of the problem-solving applications for the JOMY Safety Ladder. The ladder's discrete appearance makes it an ideal solution for access and egress requirements. The ladder looks like a drainpipe when closed, but opens to a heavy-duty ladder with slip-resistant rungs and a safety rail. Jomy Safety Ladder Co., 1728 18th St., Ste. 201, Boulder, CO 80302. Phone 800-255-2591.

Jomy Safety Ladder

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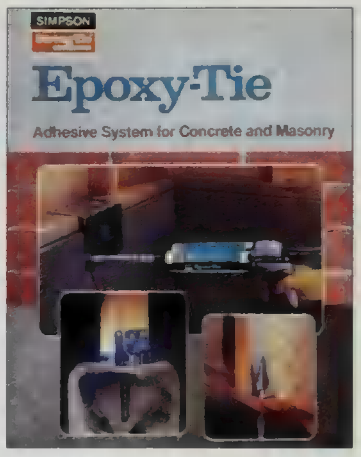
Anchoring bolts easier with EPOXY-TIE ™



Low-cost epoxy system for retrofits in concrete or masonry provides stronger anchoring than can be achieved with mechanical anchors. Epoxy-Tie™ bonds with surrounding concrete; anchor is less prone to side-burst during close-interval installation. Higher resistance to moisture and vibration than mechanical anchors. Full information in brochure **F-ET**.

Simpson Strong-Tie® Co., Inc.

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Ultra-Lite natural granites, marbles, limestones & slates. Offering natural stones with 80% less weight. Reinforced for high impact & flexural strength. Especially well suited for renovation & reclad. Saves on back-up framing & structure requirements. Reduce installing labor costs. Used on building exteriors throughout the world. Also elevator cab & lobby cladding, ceilings & locations requiring real stone but less weight.

Stone Panels, Inc.

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New Fireplace Tested as a Wall Furnace

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[illegible]Glo

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Bicycle Lockers

CycLockers are all-steel modular bicycle storage cabinets that accommodate two bicycles per unit. Modules can be used individually or in linked groups sharing common walls. Choose from over 170 coating colors, two-toned color schemes, or stainless steel versions. For new brochure call 1-800/547-1940 ; request extension 530. Columbia Cascade Co. Portland, Oregon.

Columbia Cascade

Circle 34 on Inquiry card

Accessible Lavatory Insulation

A full color catalog will explain the different Handy-Shield safety covers offered for the new or retrofit projects that need to comply with the American Disabilities Act. The specific use, sample specifications, drawings and color choice are all summarized in this easy to understand catalog.

Plumberex

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OSB: Performance by Desi

Get the latest word oriented strand board, engineered structural pa Range of panel size thickness means fe design constraints and waste. Applicati include: wall sheathing, sheathing, subfloors, sir layer floors, and I-bea Plus, OSB is approved b major model buil codes. Call the Struc Board Association (416) 9090 or fax (416) 730-901

Structural Board Assn.

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Chadsworth Columns

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hadsworth Columns

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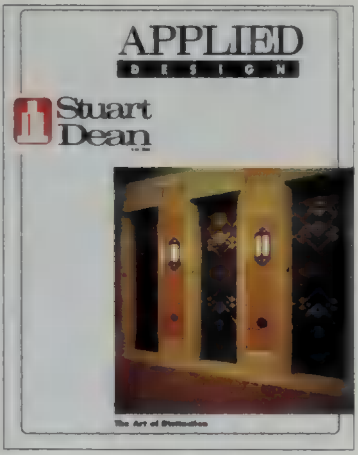
Applied Design by Stuart Dean



When a new architectural design technique is impressive enough to be used by firms like Pei, Cobb, Freed & Partners and Frank Williams and Associates, at only half the price of etching, it catches everyone's attention. Stuart-Dean's Applied Design is a versatile method for decorating and refinishing elevator doors, metal, wood or glass. It can often be applied on site, overnight. You can choose stock patterns or custom artwork. 1-800-322-3180.

Stuart Dean

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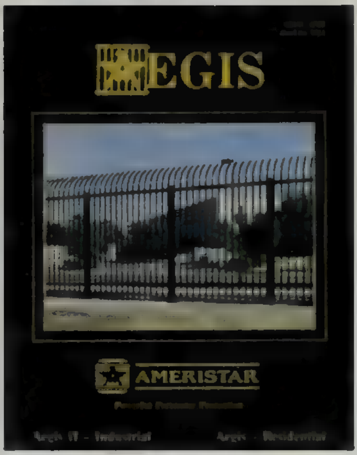
AEGIS™



Aegis ornamental fence systems feature strong Forerunner™ rails, internal retaining rods, ■ specially designed panel brackets. Aegis II industrial ornamental fence offers the strongest security ornamental fence available in todays market. Aegis holds the distinction of having its fence systems specified by more architects & builders than any other in the market. Both industrial & residential brochures are available upon request ■ include data on structure, design, ■ options available. Panel design is a component system for easy shipping. For additional information ■ a free 8-page brochure , call (800) 321-8724. P.O. Box 581000, Tulsa, OK 74158-1000. Fax# (918) 835-0899

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Applied as a slurry coating, Xypex is a chemical treatment that waterproofs by penetrating the concrete with a crystalline formation that 'plugs' the pores of the structure preventing water seepage. Xypex is ideal for use on the 'inside' of wet underground structures.

Xypex Chemical Co.

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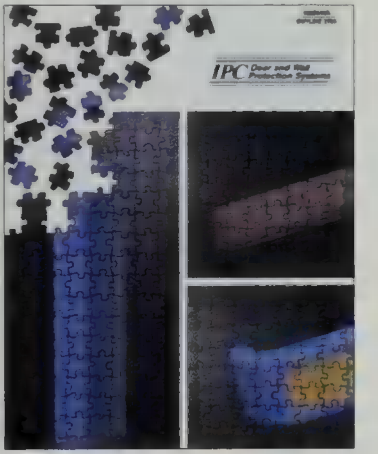
Exterior Wall Coating Systems

nited Coatings, manufac- ring quality finishes for over) years, offers 3 different terior wall systems. Canyon ne Stain provides damp- oofing and color uniformity ithout altering the surface xture, Aquathon water- oofs with an elastomeric embrane which bridges airline cracks, and Uni-Tex corporates the ultimate in S technology in providing a eatherproof textured finish. **ited Coatings** ... Longevity Design.

ited Coatings

cle 41 on Inquiry card

Door and Wall Protection Systems



IPC - Institutional Products Corporation is a manufacturer of high impact door, corner and wall protection systems. Our catalog illustrates a product line that includes Handrails, Corner Guards, Wall Guards, Kickplates and Wallcovering. Our durable vinyl products, offered in 50 designer colors, provide an attractive way to protect interior finishes from damage.

Institutional Prods. Corp.

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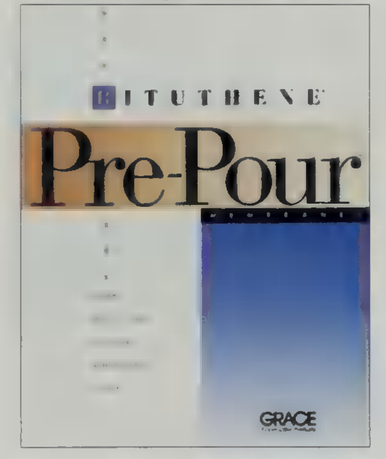
The First Truly Effective Blind Side Waterproofing Bituthene® Pre-Pour™ Waterproofing Membrane System



Bituthene Pre-Pour Membranes, for walls and/or concrete slabs, offer both immediate in-place protection and long-term performance. Performance based on a tight, unbeatable mechanical bond with the concrete. Installed under slabs and on the outside of foundation walls cast against soil retention systems, our patented membranes let you "tank" (envelop) the entire below grade structure.

Grace Construction Products

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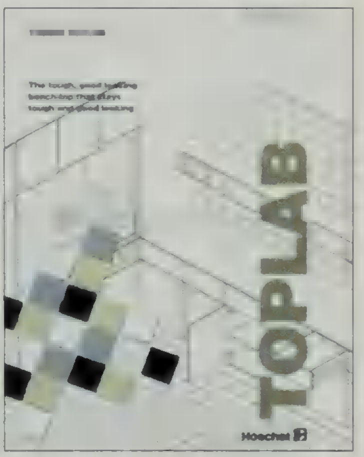
Trespa® Toplab® Lab Panel



Trespa® Toplab® grade resists strong acids, e.g. 96% Sulfuric, and other chemicals. Toplab is durable, easy-to-clean, and available in colors. It will not rot, rust, delaminate, or support bacteria. Toplab is available in sizes up to 1" thick and 12' in length; it remains flat for excellent butt joints and is 25% lighter than epoxy. 1-800-4-TRESPA.

Hoechst Celanese Corp.

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Manufacturers' Spotlight

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Let the experts at Halquist Stone show you the stone to use to get your next job noticed!

Halquist Stone

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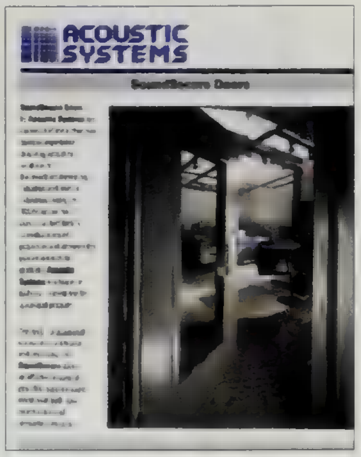
Acoustical Doors & Windows



SoundSecure Doors & Windows by **Acoustic Systems** are the result of more than two decades experience providing acoustical solutions to the industrial, medical & broadcast/recording industries. Available in standard & custom sizes, the acoustical doors come in single or double leaf design, with optional windows in a variety of sizes. SoundSecure Windows are also offered in standard & custom dimensions. Varying levels of acoustical performance are offered to meet specific project needs. **Acoustic Systems, PO Box 3610, Austin, TX 78764. 800/749-1460.** 512/444-1961 FAX 512/444-2282

Acoustic Systems

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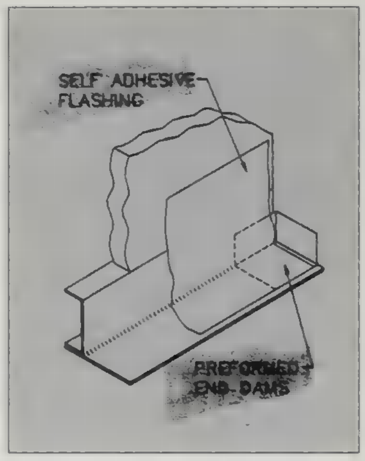
A Thru Wall Flashing System Which Waterproofs Also



Polyguard, already named in 54% of major below grade waterproofing membrane specifications, has tackled the national problem of moisture related failures in masonry cavity walls. Polyguard's Thru Wall WAterproofing System includes self adhesive flashing, pre formed end dams, pre formed corners, drip edges ... and more. Our goal - the most user friendly system available, plus low installed cost compared to metal flashings. Call 800 541-4994.

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Raymond Enkeboll Desi

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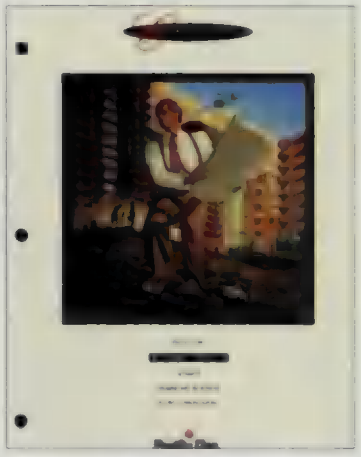
Senergy Offers Updated Information

Senergy Inc. has released updated specifications, typical details and technical information which include metric conversions and new EIMA guidelines, available in Senergy's [illegible] Binders. Senergy's [illegible] software for [illegible] (R 11 and higher) [illegible] Senergy's details [illegible] specifications [illegible] has also been [illegible] is available to [illegible] and specifiers.

[illegible] Inc.

[illegible] Inquiry card

Choices



Todays Architect has a multitude of choices when specifying Pacific Clay Brick. Pacific Clay Brick offers quality high fired brick pavers, face brick, mini-brick, bullnose and special shapes in a wide range of colors and textures. For literature describing our vast array of products call: (909) 674-2131.

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workplace
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olomyx
product of Surface Protection Industries International

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Sterling Custom Enclosures CAD Library

Sterling offers a CAD Library to aid in the design and application of custom finned tube enclosures. This extensive Windows compatible library shows the custom capabilities of Sterling in dealing with unique applications and design constraints. Drawings can be incorporated into project specifications or used to develop project specific submittals.

Sterling

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Dock Equipment

The dock equipment brochure from BLUE GIANT incorporates architectural specifications with typical application descriptions and detailed feature photographs. Location photos show the many and varied types of loading dock equipment manufactured by BLUE GIANT and installed around the globe. BLUE GIANT USA Corp., One Industrial Park Dr., Pell City AL 35125. (800) USA-BLUE. Fax: 205-884-1504

BLUE GIANT USA Corp.

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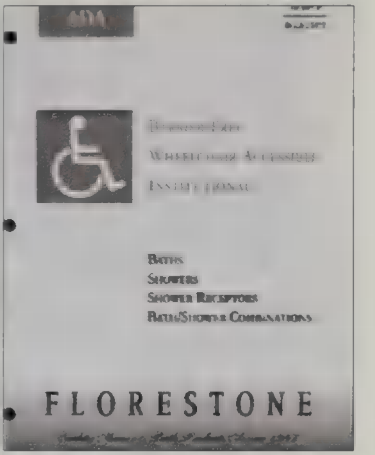
Barrier-Free Products Catalog



New Florestone brochure describes ADA compliant, barrier-free, wheelchair accessible and institutional showers, shower/bath combinations, and shower receptors. Drawings and listing of Building Codes and Testing Standards, as well as a section on the codes is included. Call (800) 446-8827.

Florestone

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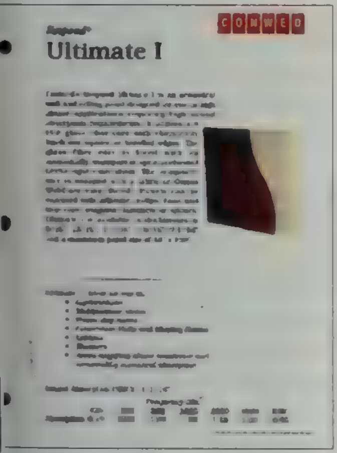
Conwed Respond Ultimate I Panel



onwed Respond Ultimate I an acoustical wall and eiling panel designed for use areas requiring abuse resisince and acoustical absorpon. It utilizes a glass fiber ore faced with an acoustially transparent open perfoited rigid vinyl sheet and rapped with fabric or vinyl. eal for use in: gymnasiums, eatres, and multi-purpose oms. Conwed, 1205 orden Ave., East, Ladysmith, I 54848, (800) 932-2383 or X (800) 833-4798.

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TOTAL DOOR® SYSTEMS by OPENINGS®

The TOTAL DOOR® SYSTEM is an architect-designed integrated door assembly. It includes prefinished door panels and all hardware. Fire rated pairs do not require coordinators, vertical rods, astragals, flush bolts or floor strikes. Will retrofit to any frame. Meets all codes and ADA. Wood and metal faces available to 3 hours. Lifetime limited warranty on locks and panics. OPENINGS, 40 West Howard, Pontiac, MI 48342, 1-800-852-6660.

OPENINGS.

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Fence Systems

This new aesthetically appealing Euro-design fence system combines see-thru good looks with strength and durability of 6-gauge galvanized steel mesh. Powder-coated in a large variety of colors to suit any design and enhance the appearance and security of any property it surrounds, this fence system is virtually unclimbable, rugged, maintenance-free and easy to install. OMEGA FENCE SYSTEMS, Laval, Quebec. 1-800-836-6342.

Omega Fence Systems

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Rinnai Universal Gas Furnace

Rinnai's EnergySaver direct-vent gas-fired universal furnace combines contemporary styling with exceptional energy efficiency. Features include cool-to-the-touch cabinetry, quiet twin fans, electronic ignition, built-in thermostat and humidifier. EnergySaver models 551 and 1001 put out 22,000 and 38,000 BTU's respectively and carry a 5 year limited warranty. Rinnai America, 1662 Lukken Industrial Drive West, LaGrange, GA 30240, (800) 621-9419.

Rinnai America

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Manufacturers' Spotlight

Architectural Wall Panels

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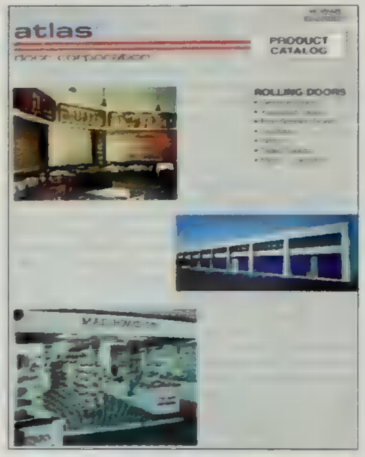

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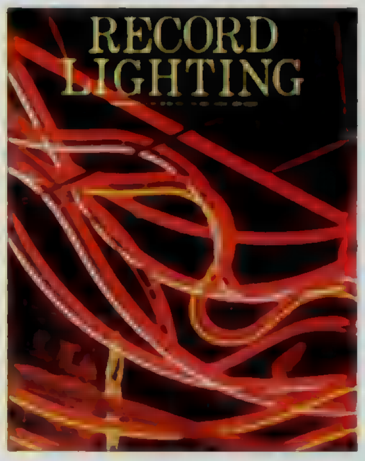

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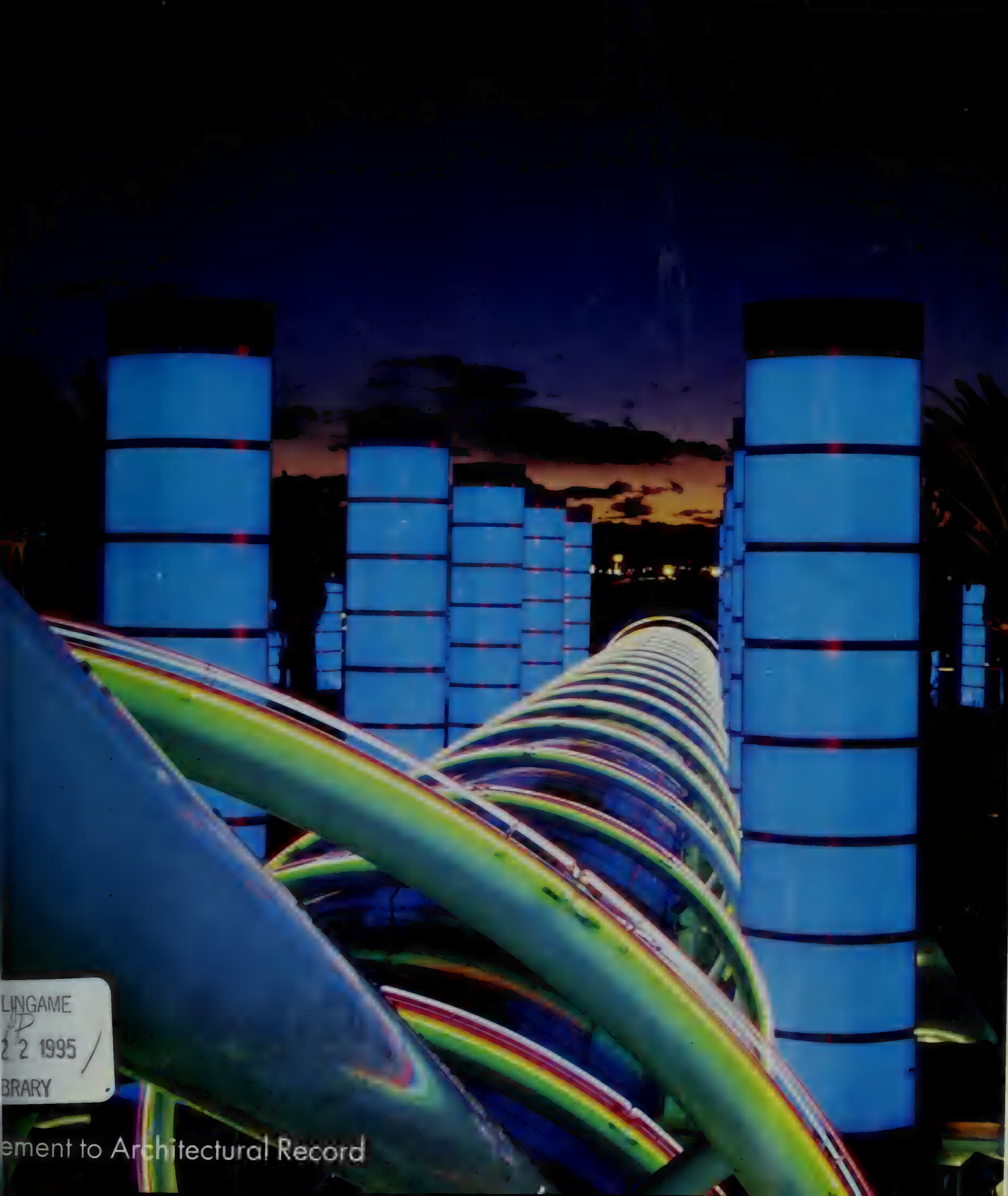

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Paul Gregory, Lighting Designer
Diseñadores Asociados, Design Consultants

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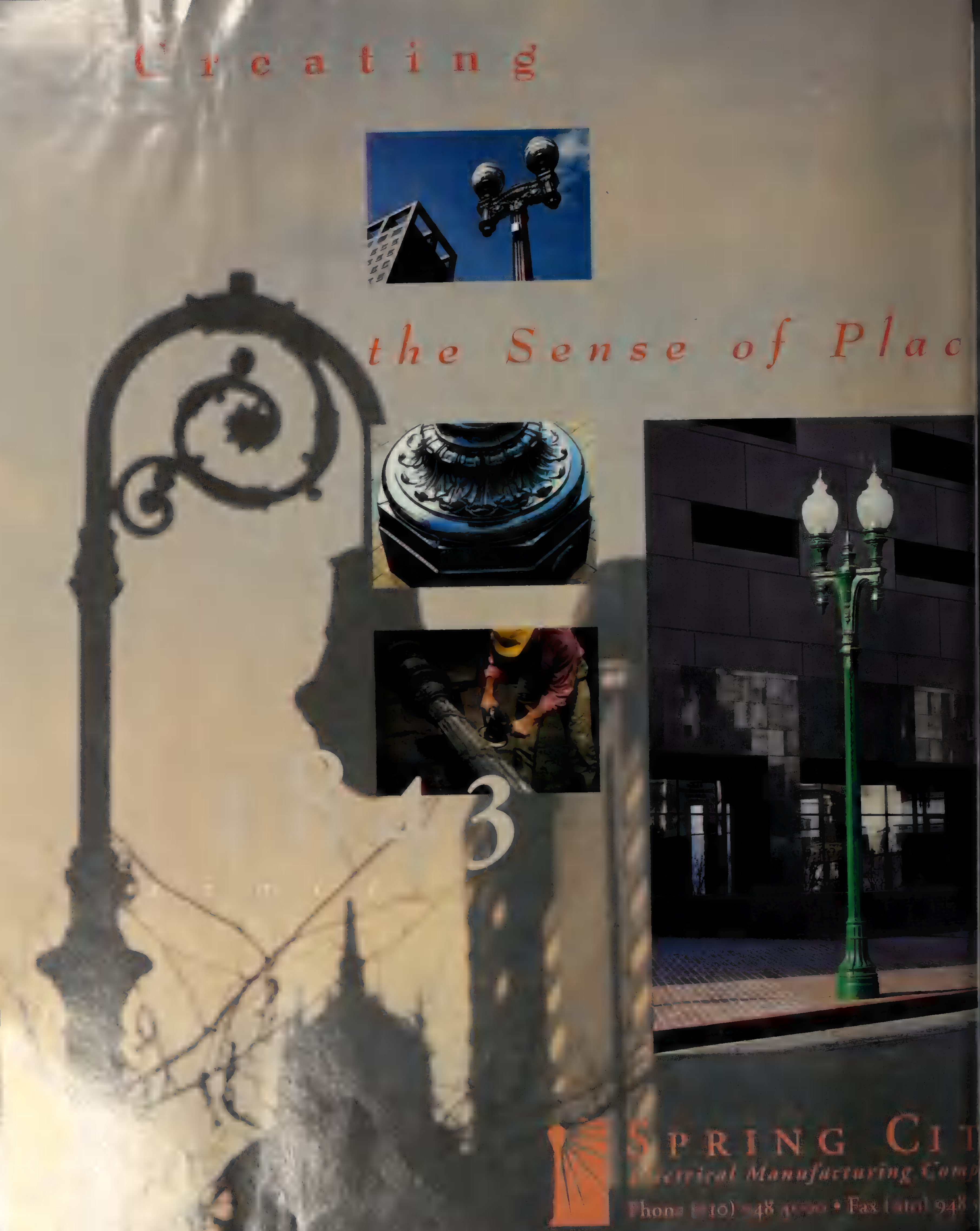
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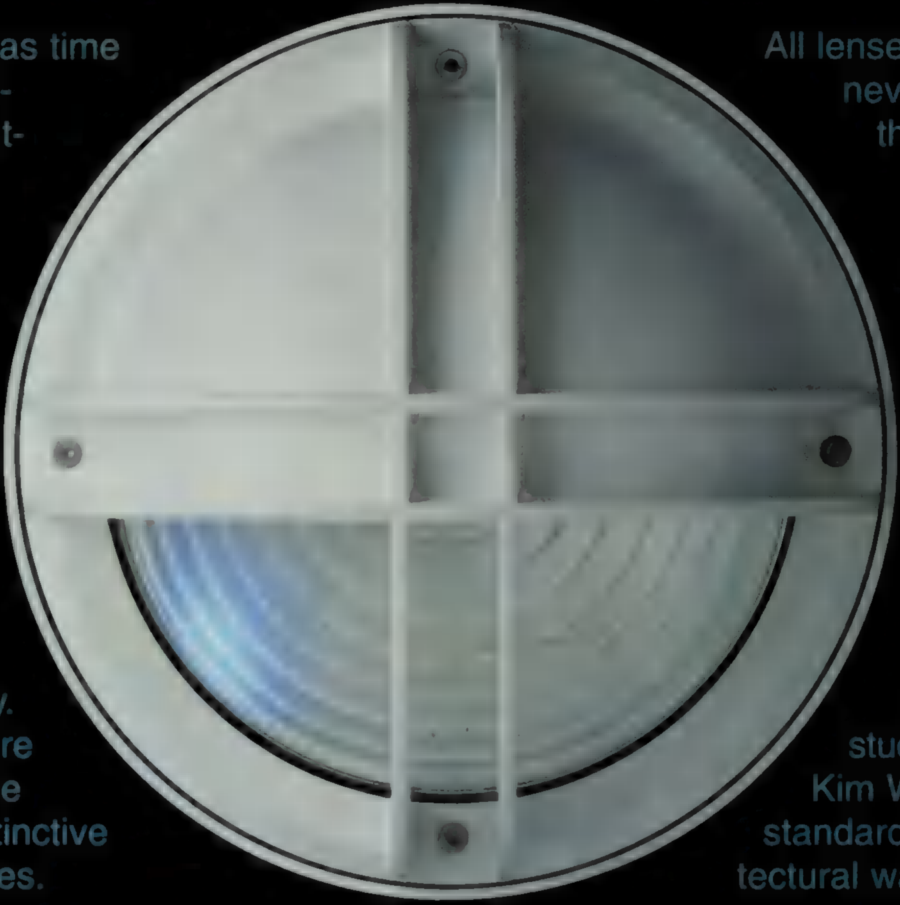

At Kim, we thought it was time to rescue the "wall luminaire" before it gave outdoor lighting a bad name. Why? Because these products were becoming nothing more than cheap architectural embellishments. Kim's new Wall Forms™ are true architectural luminaires designed for strength, performance, permanence and application flexibility. All Wall Form models are constructed of heavy die cast aluminum with distinctive double-ribbed face plates.

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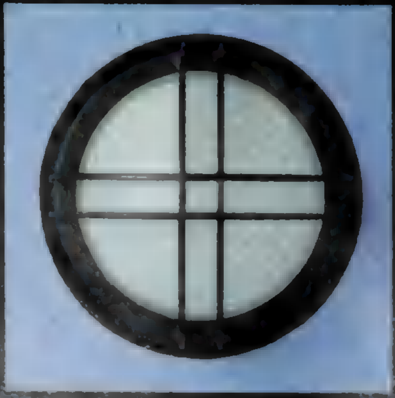
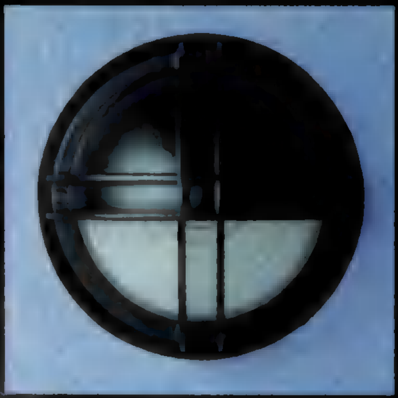


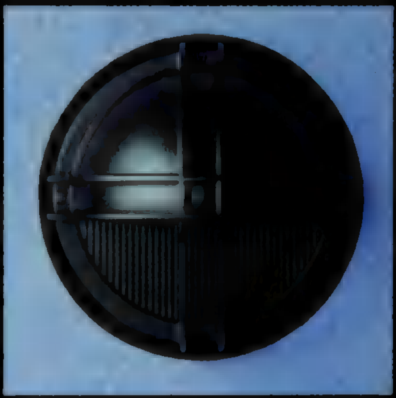
Full Face

Provides equal amounts of uplight and downlight.



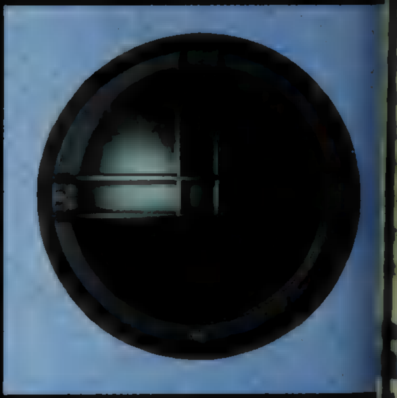
Half Face

Emphasizes downlight while still providing fixture glow.



Cutoff Face

Produces a softer effect through cutoff optics.



Shallow Cutoff Face

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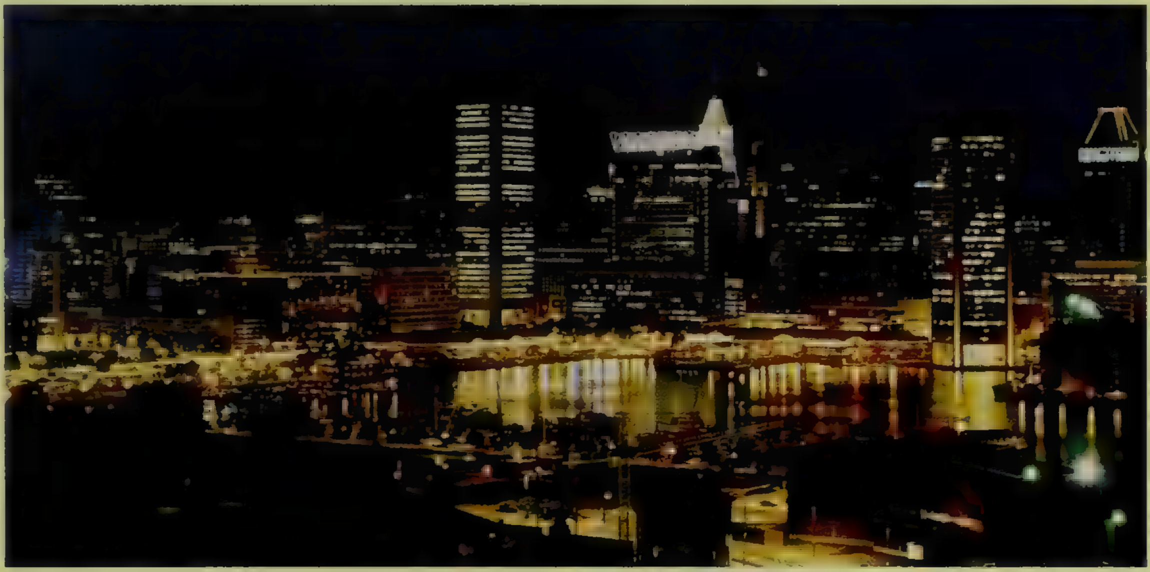
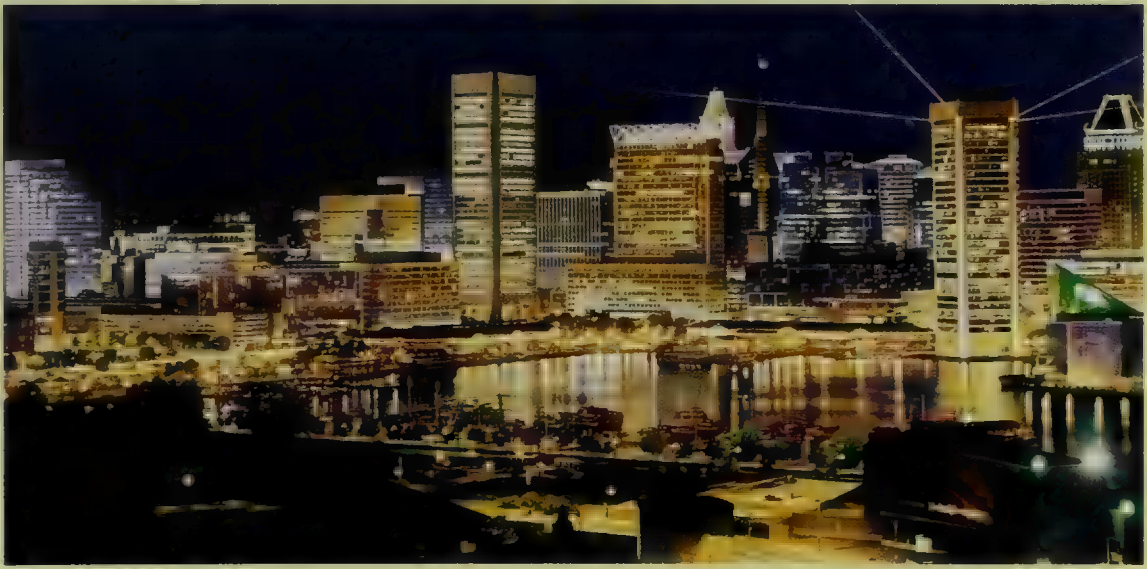
ltimore

ighting to Rejuvenate a Mid-Atlantic Metropolis

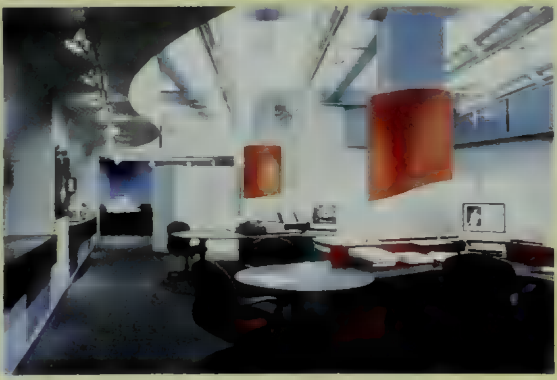
timore will soon be awash in new light.
city is going ahead with "Brighten Balti-
re," a five-year program to both improve
eet lighting and light up more building
ades. So far, several towers on the city's
line have been brightened up, including
World Trade Center, the NationsBank
ver, and the historic Bromo-Seltzer Tower.
plan—outlined by the Philadelphia firm
nald Waldron Associates—is to make
eets safer and dramatize the city's skyline.
r 100 downtown buildings were pinpoint-
or illumination, and 33 singled out as
cial to the plan. A photograph (top right)
ws the skyline as it is, and a computer-
erated rendering (below right) shows
at is envisioned, using concepts ranging
n general floodlighting to playful neon. In
streetscape plan, emphasis was placed on
ety and creating a warm, cozy environ-
nt. Various guidelines are set for the
mination of plazas, parks, parking lots,
alleys. The idea is not to dramatically
ease the amount of lighting, but to pro-
a more diffuse, comfortable light than is
rently provided. Presently, bright cobra-
ds often make it harder to see, and make
ets seem more threatening. The proposal
suggests keeping storefront lights on
l midnight (they are now often turned off
:00 or 10:00 p.m.), and using open grilles
security. These let light shine from the
e's interior, and the total effect is a more
oming city. ■





w York City

igital-Imaging udio Gets a oft Touch

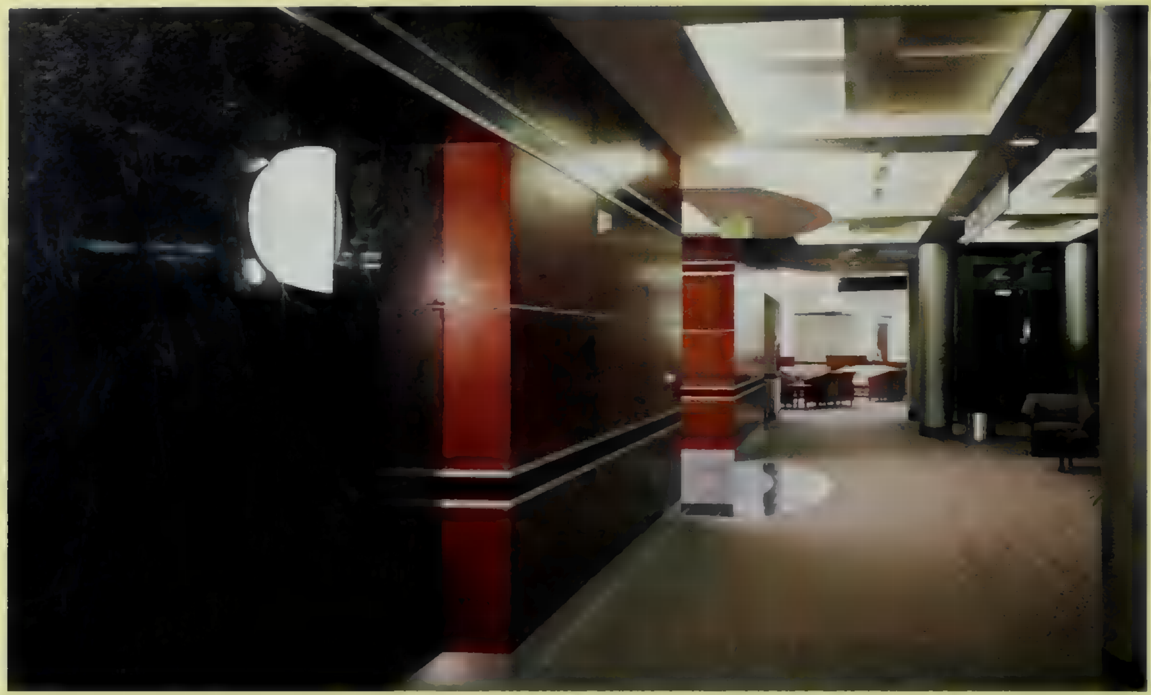


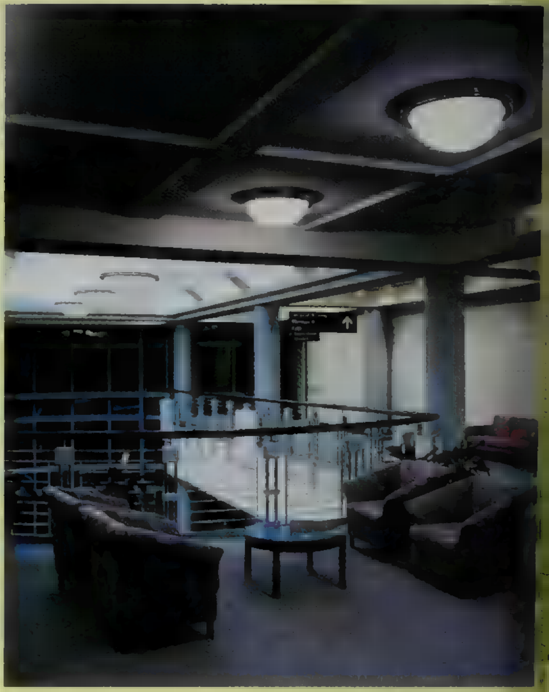
© Ken Hansen Imaging

"This is what can happen when you can get your client to visit your office," says lighting designer Domingo Gonzalez, who designed the lighting for Ken Hansen Imaging. Client Steven Kiviat was quite taken with the upturned industrial-fluorescent strips in Gonzalez's own office, a low-budget solution that worked with architect Allen Klein's flowing shapes for the 6,000 sf space. Open-gimbal-ring track fixtures with PAR floods are used to light art on perimeter walls. ■

Overland Park, Kansas

Medical Center Given Comfort Lighting



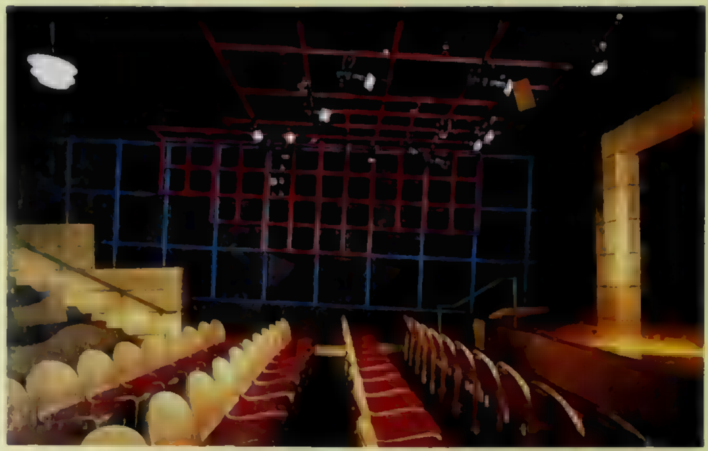


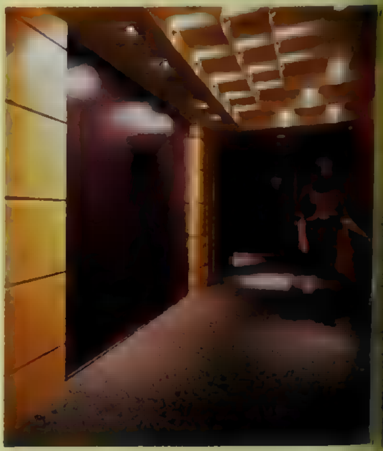
Menorah Medical Park, in Overland Park, Kansas, is a new facility in a highly competitive medical-services market. The completely integrated, expandable healthcare campus contains 82,000 sf of outpatient ambulatory-care facilities, designed from the ground up to be "the finest facility for outpatient services in the area." It includes a cafe and complete support services. An attached 89,000 sf, two-wing building contains private physicians' offices. Architectural Consultants, Inc. was charged with imagining everything that would be needed to make the facility draw patients and professionals. The resulting building is carefully conceived, from landscaping that preserves a large thicket of trees to the selection of beautiful wood paneling and furnishings that make Menorah look more like a country club than a medical building. Likewise the lighting, designed by Ed Tranin of Tranin Design Associates, was intended to look non-institutional, unobtrusive, and be energy efficient. In seating areas, and some lobby spaces, Tranin used milk-white, bowl-shaped pendants with heavy chrome rims, lamped with metal halide. These have been installed in coffers in surface-mounted conditions, and elsewhere are suspended from chrome stems (above right). The pendants have a direct-indirect distribution to provide soft illumination, whil MR16 track provides scalloped wall washing Menorah's corridors and waiting areas are also graced by a number of nicely detailed fl orescent cove details (above left and right), that vary according to the available ceiling conditions. Lighting designer Tranin also specified compact-fluorescent downlights to keep energy use to a minimum. ■

San Francisco

Randall Museum Auditorium Lighting Grabs Rave Reviews

An auditorium at a popular children's museum sat in an unfinished state for 25 years before being completed by ELS/Elbasani & Logan Architects in joint venture with Marcy Li Wong, Architect and The Engineering Enterprise. Four pendants of [illegible] design with 500W incandescent lamps light the house, and a grid for [illegible] lighting was added as well (left photo). In the foyer (right photo), the step-[illegible] washed by 20W fluorescent [illegible] usually found [illegible]. 50W [illegible] add applause. ■





sign

riefs

Lighting Research Center of Rensselaer
ytechnic Institute, Troy, N.Y., is publish-
a new newsletter, *Lighting Futures*,
ch will cover significant lighting trends
issues that affect the industry. For infor-
ion, phone 518/276-8716.

IESNA has released two new publica-
s: *Design Criteria for Lighting Interior*
ing Spaces and *The IESNA Recommend-*
Practice for Lighting Casinos and
ning Facilities. To order, phone 212/248-
0 or fax 212/248-5017. ■

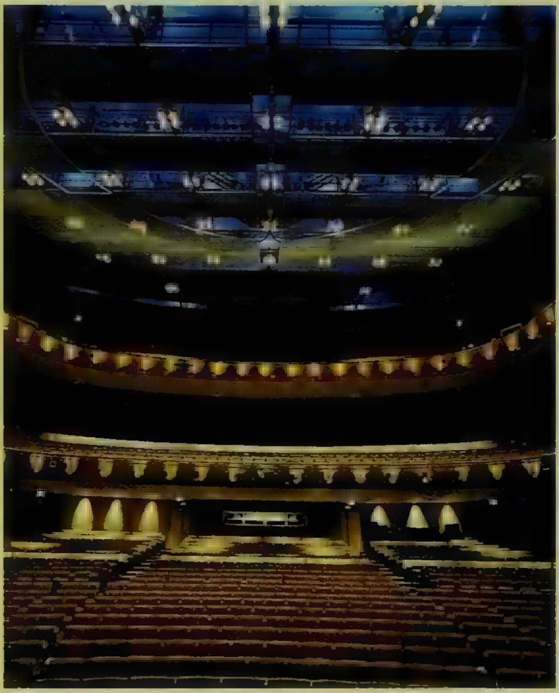
cinnati

elta Concourse a it of Parts

Delta Airlines' Cincinnati International
port Terminal, Horton • Lees Lighting
ign's team was faced with a number of
rse lighting and architectural conditions.
ge-scale architectural volumes, and a
ety of daylighting conditions made speci-
ion of expensive, small-scale, off-the-shelf
inaires inappropriate. The solution was
development of three luminaire types
g a "kit" of standard components. One
nple of the luminaire types developed is
d in a skylit concourse (below), where an
ght strip, punctuated by inexpensive
ty downlights fitted with perforated-
l hoods, brings brightness on gloomy
and a retail-like quality to the space.
where, other custom direct-indirect fluo-
ent luminaires were created from the kit:
ed white acrylic, perforated metal, and
ndescent downlights. ■

Chicago

IALD Lighting Design Awards Given at Chicago LightFair



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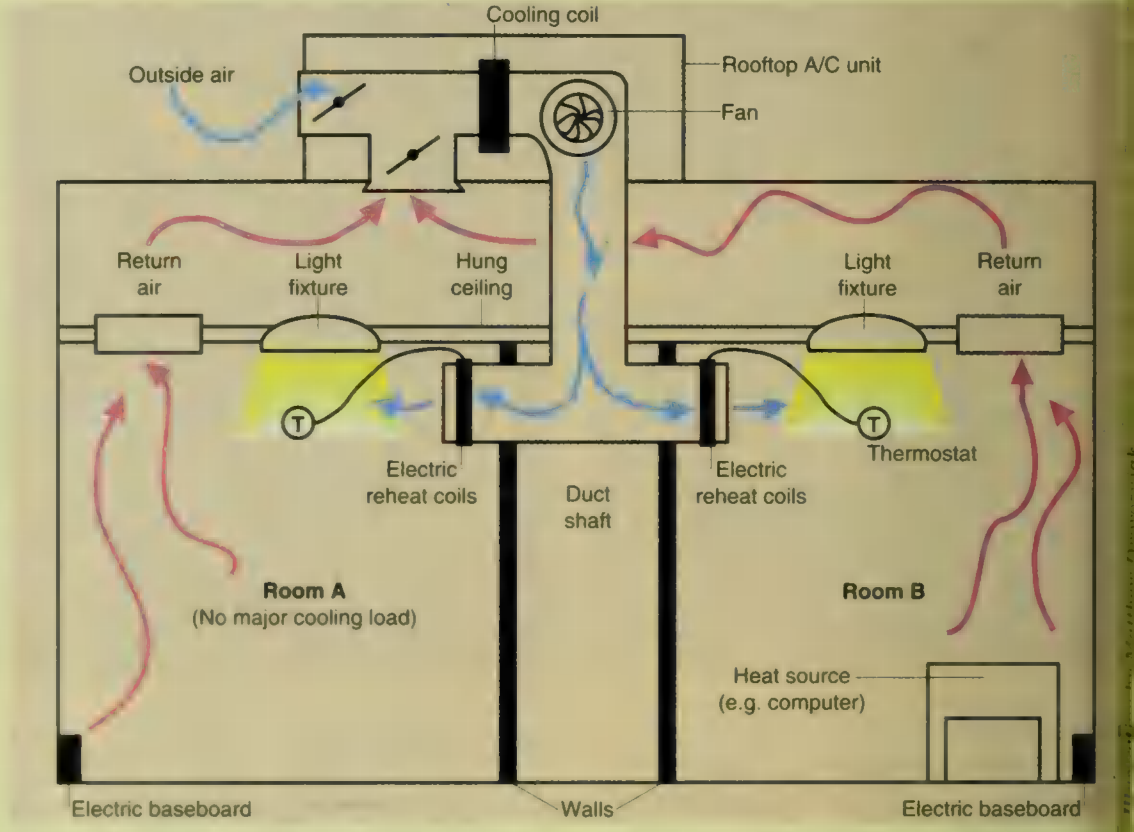
Fifteen designers received 1995 International Association of Lighting Designers Awards for everything from a casino in Biloxi to a bagel shop in Seattle. Awards of Excellence were given to two firms: Horton • Lees Lighting Design, Inc. for its interior work on the Ahmanson Theater in Los Angeles, and Ross De Alessi Lighting Design for lighting at the Santa Barbara Courthouse. Horton • Lees was cited for transforming the uninspired 1960s theater into "an intriguing home for the performing arts." A highlight of the project is a diaphanous metal scrim which floats above the audience (1). For the lighting of the courthouse, Ross De Alessi used soft, incandescent lamps to dramatize the Spanish-Colonial landmark's stucco and sandstone facade (2). Leonor Bedel & Asociados received a citation award for the interior lighting of the Basilica Nuestra Senora del Pilar in Buenos Aires (3); Hunsicker Brothers Lighting and Elliott + Associates Architects received a citation for the Ackerman McQueen Advertising offices in Tulsa, Okla. (4); and Schuler & Shook, Inc. a citation for the restored main banking floor of the LaSalle National Bank in Chicago (5). Other citation winners were: Equation Lighting Design Ltd. of London; Gallegos Lighting Design of Northridge, Calif.; Focus Lighting, Inc. of New York City; S. Leonard Auerbach & Associates of San Francisco; Lighting Design Partnership Ltd. of London; Fisher Marantz Renfro Stone, Inc. and Lighting Planners Associates, Inc. of New York City and Tokyo; Ann Kale Associates, Inc. of New York City; Douglas Baker Lighting Consultant of Newport, R.I.; Adams/ Mohler Architects of Seattle; and Lynn Redding Lighting Design of Cheyenne, Wyo. ■

Chilling Out: Do Lighting Upgrades Always Reduce HVAC Costs?

By Lindsay Audin

When vendors pitch lighting upgrades for energy efficiency, they may also claim that energy savings beyond those gained by improving the lighting system will be experienced because building cooling loads will also be reduced when lights are turned off. On the face of it, it makes sense. But these claims often ignore that some or all of these savings may be negated either by an increased need for seasonal heating, or by the way the hvac systems are designed or operated. On the other hand, other benefits, such as recovered peak-cooling capacity, are often ignored.

Almost all the wattage used by a fixture ends up as heat somewhere. Even light itself is converted to heat as it strikes room surfaces. As a result, all the wattage of free-standing wall or pendant-mounted fixtures heat the spaces they light. Similarly, some of the heat from recessed fixtures directly heats a space, while the remainder warms air in the plenum above the hung ceiling (see diagram). When that air circulates back to the air handler, its heat is removed by the cooling coil. Only the heat held by air that is exhausted leaves the building without creating a load on the cooling system.



When one hvac system serves spaces with different cooling or heating loads, electric reheat coils and baseboard heaters may w the savings from a lighting upgrade.

Simultaneous heating and cooling

Many air-conditioning systems have one central cooling coil that serves a number of spaces with different cooling needs, such as offices, a computer room, and a conference area. To handle such diverse loads, the temperature of the air discharged off the cooling coil must be set low enough to sufficiently cool the warmest zone, say a computer room. This may be too cold for the offices, so heating coils (controlled by room thermostats) reheat the overly cool air to a level comfortable for these spaces.

These are often referred to as reheat, dual-duct, or multi-zone systems, and would react to a reduction in cooling load due to a lighting retrofit by actually having to *increase* their heat output. Similar results may occur for [illegible] and fan-coil systems, depending on their piping and controls. In such cases, little or no cooling savings are seen, and energy for heating actually increases in the summer.

When the reheating coils are electric, removing lighting wattage will cause them to come on more often to keep room temperatures constant. Not only are there no cooling savings, but now even the wattage saved by the lighting upgrade may be negated by the additional power drawn by the electric coils.

Where reheat coils have been disconnected, a common measure left over from energy "crises" of the past, there is nothing to balance the reduced cooling load due to a lighting retrofit, and summer room temperatures may drop into the low 60s. In one building, a reheat system had to be turned back on after a lighting upgrade. In another, occupants actually turned on portable electric heaters in the summer, defeating some of the benefit of the lighting upgrade.

In some geographic areas, the cooling-coil discharge temperature can be reset to a higher level after a lighting retrofit. Hvac costs, for both heating and cooling, will the be reduced since less reheating occurs as over-cooling is reduced. Unfortunately, this trick may not work in coastal or southern climates where a building's humidity is controlled by maintaining a low cooling-coi temperature.

On the other hand, increased heating costs are nearly always ensured by a lighting upgrade. When rooms get cooler in winter, thermostats (and users) respond by calling for more heat. In most cases, the cost of ex heat is much less than the savings due to lowered electrical consumption for lighting so this penalty is small. There is, however, important exception to that rule. Some (or all) of the energy benefits of a lighting upgrade may be negated when electric bas boards supply the heat.

Eliminating one kilowatt-hour (kWh) of he from lights may result in consumption of another kWh by baseboard resistance heaters. The net result may be zero saving during the heating season. And where bot electric reheat coils and electric baseboard

[illegible] Audin is energy manager [illegible] University and lighting research [illegible] E Source, a Colorado-based [illegible] group.

hen vendors claim cooling savings from a
hting retrofit, beware. Retrofits do bring savings,
t sometimes they are of an unexpected nature.

common, there may be little or no net
ings from a lighting upgrade.

er modern buildings may be equipped
n electric boilers, so it pays to verify that
n hot water baseboards are not served by
dden electric-resistance heat source. The
effect of such hvac interactions may be
t little (or no) measurable savings will
ear on electric meters in the summer (due
lectric reheat) or in the winter (due to
ctric baseboards). Such "all-electric"
ldings are therefore rarely good candi-
es for lighting upgrades.

ctric heat pumps, however, deliver several
ts of heating for every unit of power they
sume, so taking away one kWh of heat
n lights requires a heat pump to use only
action of a kWh to replace it.

plistic computer analyses mislead

ne analysts have used computer simula-
s to quantify cooling savings from
ting upgrades, but such models are often
simplistic and bear little resemblance to
ways that existing hvac systems are
igned or actually operate. Some models,
example, do not properly account for the
tric power used by cooling auxiliaries
h as chiller pumps), often assuming that
r wattage varies with the cooling load.
ess controlled by sophisticated variable-
d drives, most fans and pumps run at the
e speed and duration regardless of minor
ges in load. As a result, such simulations
n overestimate hvac energy savings. In
author's experience (which includes both
puter modeling and metering of savings
r large lighting upgrades), claims of net
savings after a lighting upgrade are, at
, speculative and, at worst, misleading.

at should you tell your clients?

ifferent parts of the country, cooling is
h more expensive than heating due to
rent utility rates or operating periods.
ch locations, net hvac savings may occur.
he other hand, buildings located where
eating season is much longer than the
ng season could actually see a net
ase in hvac costs. Unless one is quite
liar with a facility's hvac system, it may
st to simply say that hvac savings will
nall compared to the savings that will be gained by reducing lighting-system wattage.

Because heat from lighting is commonly included in the sizing of cooling equipment, reducing that load creates spare peak-cooling capacity: it's like making a chiller plant larger, at no extra cost. Such extra capacity may be used to cover increases in load due to new office equipment—the fastest growing source of cooling load—or ■ reduction in chiller efficiency from an EPA-required conversion to a non-CFC refrigerant, for example. As a building's cooling load grows, it becomes increasingly difficult to maintain comfort on the hottest summer days, so increased spare capacity translates into fewer "hot" calls on such days.

> *"Some reheat, dual-duct, or multi-zone systems react to a reduction in cooling load due to a lighting retrofit by actually increasing their electric heating system output."*

Bottom-lining the benefits

Every 100 kilowatts (kW) removed during a lighting retrofit cuts cooling load by up to about 28 tons. When the costs for cooling-system auxiliaries, supplying new electric service, adding ductwork and piping, etc. are included, total expenditures of $3,000 to $5,000 per ton are not unusual, so installing an air-conditioning system that can handle that much cooling today could cost over $80,000. Additional cooling equipment is often necessary to handle loads from new computers, copiers, and other heat-emitting devices, so a lighting upgrade can produce significant cost avoidance.

For example, assuming that 20 percent of heat output is dumped through exhaust air, the avoided-cost for new cooling plant construction due to the elimination of 1 kW of lighting is:

(28 tons ÷ 100kW) x (100% - 20%) x
$3,000/ton = $672/kW.

Taken another way, depending on the measures taken, reducing lighting wattage from a typical average of 2.5W/sq ft down to 1.5W/sq ft costs $1 to $2/sq ft (or less, when lesser wattage reductions occur), so the cost of eliminating that same kW in the form of lighting is about:

(1,000W/kW) x $1/sq ft ÷
(2.5 - 1.5)W/sq ft = $1,000.

Comparing these two figures, we see that the "harvested" cooling capacity is worth almost as much as the cost of the entire lighting upgrade. One could thus claim that the new lighting has nearly paid for itself before even being turned on.

In one real-life example, building owners considered converting a garage area into a mainframe-computer space. They asked if the building had enough cooling capacity to handle such a load increase, estimated at over 20 tons. Initial estimates for new cooling equipment exceeded $50,000, but an earlier lighting upgrade had freed up over 100 tons of central-plant capacity, making much of that expenditure unnecessary. The extra capacity harvested by the lighting upgrade was money in the bank.

Harvesting still more capacity

It is also worth noting that upgrading buildings with high-efficiency lighting can free up existing electric-service capacity by reducing wattage demand and raising power factor. This was found to be true with the garage that was converted into a mainframe computer room. Adding additional electrical service ranges from $50 to $250/kVA, depending on the geographic area and amount of work to be done, so if more service capacity is needed, the cost that can actually be saved and the amount of capacity gained depends on a number of factors, but is still additional money in the bank. ■

Lighting on the Bleeding Edge

By James Robert Benya

What gets lighting designers into trouble is creativity. A new product is introduced, and we just have to use it in a new design. Most of the time, the products are developed carefully, supported by research and testing, and are available to the contractor at the right time during a project. But sometimes we just can't resist riding along what I call the *bleeding edge*, where our creativity and faith in new products results in projects that are either truly incredible, or else result in embarrassment, dissatisfied clients, and outright disasters.

The lighting manufacturing industry labors under constant pressure, from both competitors and specifiers, to produce products in months that are expected to last for years. Granted, a product that is born of this R& D pressure cooker may operate fine in a laboratory. But in the real world, with ordinary power, temperature variations, humidity, and the brute forces of people and nature, a product may suddenly exhibit less than wonderful behavior. Maybe a product suffers a total failure, or maybe only an illogical "phantom" failure, like when a certain kind of lamp and switch combination causes a premature lamp failure, and nobody knows why.

As either a designer or a manufacturer, if you've avoided getting cut by the bleeding edge, you're lucky. I probably don't have to prove this point to anyone, but here are a few recent examples of products that hit the marketplace with unfortunate consequences for those involved with them, whose names I have omitted to protect the wounded. To be fair, it's worth noting here that many of the products whose stories I'll tell have been redesigned and are now used successfully. Other products still beg for attention.

Black boxes that blew

The high failure rate of electronic ballasts in the early 1980s postponed the general acceptance of the product for about [illegible] years, and [illegible] the biggest wounds the lighting [illegible] faced. The [illegible] was not [illegible] ballasts would [illegible], but [illegible] circuit design [illegible] companies [illegible] of full-t[illegible] power. [illegible] many lessons have been learned, the electronic ballast is a safe bet. But it still pays to beware of new companies or models—reliable ballasts are difficult to design.

And it was not just T12 and T8 ballasts that suffered from high failure rates. Several manufacturers' compact-fluorescent ballasts had notoriously high failure rates. Occupancy sensors had their days of infamy before becoming relatively reliable and stable, and I have had a number of problems with dimming systems that suffer from a kind of "electronic senility"—their memories come and go. To avoid the bleeding edge in electronics, be wary of "new concepts," and especially all-new ideas, until a reasonable maturation time has passed.

A new generation of ballast woes

The latest problem with electronic ballasts is a real doozy. Those following the evolution of electronic ballasts will remember the potential power-quality problems that were presented by them, and the work done to reduce ballast-current harmonics to under 20 percent. But in the zeal to have better power quality, ballast designers developed very-low-harmonic-distortion ballasts, under 10 percent and as low as 4 to 5 percent.

Unfortunately, when turned on under certain conditions, some of these products will cause a current in-rush of about 100 to 150 times normal—at the high end about 10 times greater than the in-rush caused by an incandescent lamp. This creates a high potential for damaging ordinary switching and control devices—even a specification-grade toggle switch isn't rated for this level of switching current. At least one controls manufacturer has developed an occupancy sensor using zero-crossing switches to counter this. Still, designers and engineers should practice caution when specifying very low harmonic-distortion ballasts and control systems.

Those odd end-of-life-conditions

The euphemism "non-passive end of life" came from an unexpected problem with conventional metal-halide lamps. If the end of life comes when a lamp is operated on regular on-off cycles, the lamp will simply not start. But if the lamp is operated continuously throughout its life, when its time is up it will literally explode. Unfortunately, it took 24,000 hours of continuous use for the first customer to detect this condition—unanticipated by the manufacturer. Fortunately, metal-halide lamps are now required to hav some protection against arc-tube explosion, either within the lamp or fixture.

A similar problem has existed with small-diameter fluorescent lamps when used with electronic ballasts. The cathode fails at the end of the lamp's life, but the electronic ballast can overheat the support wires, converting them to cathodes and continuing wh would appear to be normal operation—that until someone notices smoke coming from tl molten lamp base. Electronic ballasts for T and other small lamps are now being redesigned to detect this problem and shut down before melt down.

Fortunately, most end-of-life problems are limited to the notorious color-shift of metal halide and some high-pressure sodium lam Claims of close-color tolerance and minimu color shift seem hard to believe when you observe a room with lamps in every color o the rainbow—with warm-colored cool lamp and cool-colored warm lamps. It makes one long for our halogen days, doesn't it?

But halogen lamps can also experience a no passive end-of-life event, especially the thin-film infrared reflecting and high-watta quartz types. These are sensitive to physic shock when hot; the filament responds to impact or even movement by shorting or failing. The earliest IR lamps were so sensitive one didn't dare adjust one once it was operating. Improvements have been made, but it is still important to be gentle when adjusting those PAR display lamps.

Color, UV, and IR

Funny color problems occur with every typ of fluorescent lamp, and even MR16s. Compact fluorescent color can vary with th burning position. When used in combinatio 3500K rare-earth lamps from different ma facturers don't match; the 3000K metal-halide lamps certainly don't look like any 3000K fluorescent lamps, which don't look like 3000K halogen lamps—assuming the contractor didn't rewrite the spec and install all 40W cool whites anyway.

e "bleeding edge" is where a lighting designer's faith in brand-new oducts results in projects that are truly incredible, or are ıbarrassing humiliations that leave everybody wounded.

h compact fluorescents, especially the V twin tube, the amount of ultraviolet iation is substantial. White-painted reflec- s or cover glass usually absorb the iation. But the polished aluminum used in st CFL downlights reflects the UV and centrates it. You might want to think ce about putting them over that $10,000 ental rug the interior designer has speci- for the lobby of that law firm. And forget ut using any type of fluorescent lamp for t energy-efficient museum project.

metal-halide is the all-time champion UV tter, especially the quartz-tube-type ps. Even with the required cover glass, amount of UV from the luminaire is many es the amount emitted by a halogen or ndescent lamp. Some grocers who have d metal-halide display lighting of produce eve it prematurely ages the fruits and etables. And these products aren't on lay very long.

ared emissions have the potential to be lematic, too. The compact fluorescent s ultrasonically modulated infrared light. loes a television remote control. Obvious- sing table lamps with CFLs in them in den poses the risk that an inconvenient raction with the TV will be created.

ere did the light go?

rescent lamps are notoriously tempera- sensitive. But tests at Lawrence keley Laboratory discovered that for t compact-fluorescent luminaires and ications of screw-base CFLs, the *appli- m thermal factor*, which accounts for recoverable light loss due to heat, was as as 15 to 20 percent. Both burning posi- and bulb-wall temperature contributed is characteristic. These losses are so sig- ant that most specification downlights ıow being designed with some sort of ilation or heat sinking to minimize them. many newer lamps are being developed amalgam technology to provide stable output over a broad temperature range.

ıwhile, metal-halide lamps continue to oit severe lumen depreciation, losing as ı light in the first 1000 hours of their as fluorescent lamps do in their entire mes. Near the end of its life, a metal-halide lamp has often experienced a 50 percent drop in lumen output. Be sure your lighting calculations include a suitable light-loss factor.

Resolving conflicts

Nearly every lamp, ballast, and luminaire manufacturer has experienced some disasters—sometimes caused by a lighting-system component they didn't make. A lighting system after all, usually requires products manufactured by different companies, and even the skill, labor, and materials provided by the contractor can come into play. When there are problems it often takes time and adjudication to identify who is at fault, and often no single party has the skill or responsibility to resolve them. And when there are problems, the only thing everyone seems to have in common is that they are all equipped with a finger to point at everybody else.

The resolution of a problem is probably the ultimate test of the designer's professionalism and the manufacturer's integrity. For the designer's part, he or she should be expected to work with the manufacturer to resolve problems, usually at their own expense. Designers should be advised of the risks and benefits of using new technologies and ideas and, if possible, given the option to use conventional technology. It is often smart to do small installations to confirm the success of a new product before repeating a potential mistake—and harvesting the liability that goes along with it—on a very large project. I don't mean to imply that the designers should avoid small or new companies; but they should be able to expect these companies to stand behind their products far into the future.

So, if you're going out on the bleeding edge, it is extremely important to make sure that adequate protection for you and your client is built into the contract documents. Make certain that warranty periods are sufficiently long, and provide for labor and materials to replace defective or failed systems. Make the contractor completely responsible for problems that arise from unapproved substitutions or failure to observe contract documents or other details. Make a single party responsible for systems coordination and operation, even if that party makes only a portion of the system. Require that all of the lamps come from the same manufacturer.

Benya's holy grails

This is also not to discourage those manufacturers who endeavor to try something new, even though it is extremely annoying that there are a few companies out there who introduce new products that are not quite ready to manufacture, and won't be until they get a sizable number of orders. Before you specify something new, you may want to get a commitment from the manufacturer. Bleeding-edge lighting designers who believe too many promises are especially prone to losing some blood.

In 1976 the Department of Energy proudly announced the Hollister Lamp in response to the energy crisis. It was to be a fluorescent lamp without electrodes. In 1991, it as introduced by someone else as the "QL-lamp." In 1992 it was introduced as the "E-lamp." In 1994 it appeared under the "Genura" alias. We still don't have an electrode-less product that is available for general use and specification, and we could really use one. Don't count on the sulfur lamp yet, either. The lamp may last forever, but the microwave unit is only rated at 10,000 hours.

Other examples of new products that lighting designers dream of are:

- An electronic ballast for the 150W metal-halide lamp.
- The T2 fluorescent lamp.
- An affordable electronic ballast that is dimmable.
- Low-cost lightweight electronic ballasts for most HID lamps.

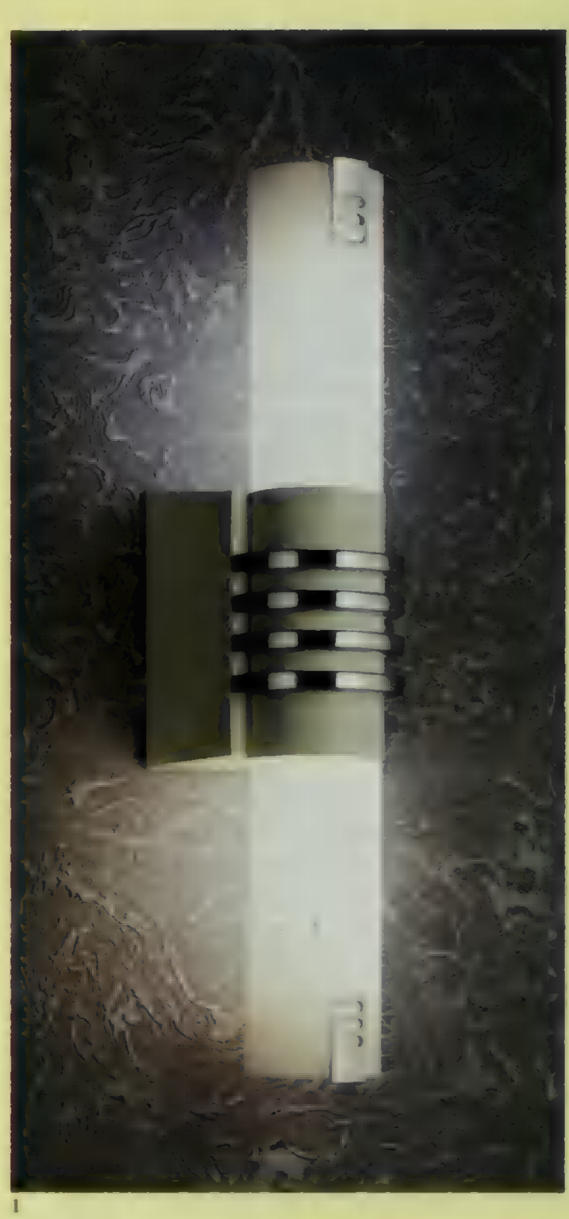
So, that's the bleeding edge. Manufacturers must not stop trying to develop new products, and lighting designers must not stop trying to be creative by applying wonderful new products that will allow better lighting with less energy use. Everyone just watch your step and keep the Band-Aids handy. ■

Back from the Drawing Board

344. Tooling up

According to head designer Kevin Willmorth, Visa Lighting has always offered functional, performance-driven products with an esthetic core. At Lightfair, the Milwaukee firm introduced fixtures that renewed both performance and esthetic criteria with an entire line designed exclusively for compact-fluorescent sources such as the 36/39W Biax and 2-D. (There are few if any incandescent lamping options.) The new luminaires are linear, square edged, less rounded, and in general more International than midwestern in feeling. Parts are made of cast metal, a capital-intensive technique requiring a high level of investment for tooling dies. But casting is cost effective, as one cast part can incorporate a high level of design detail and multiple functions. Individual luminaires include European materials such as FRP and polycarbonate, cast glass, and zinc. These new fixtures are intended to be part of the architecture, scaled for large and medium commercial applications without intruding on the space.

1. An ADA-compliant version of the Colonnade-style sconce has color or metal-finish banding on cast bracket; opal-acrylic diffuser 13 1/2-in. high. 2. Lance comes as a pendant, and in both horizontally and vertically oriented brackets, for biaxial-fluorescent lamping. 3. Shown in one of two sconce versions, Saber direct/indirect design also comes as a 36-in.-high pendant. For biaxial lamping, fixture has a perforated-aluminum diffuser. 4. Made of extruded and cast aluminum, Riverside bollard has an Arts and Crafts effect. Base is covered in unfinished cedar. 5. Flight uplight comes as sconce, pendant, and standing lamp. Materials include extruded aluminum, polished chrome, FRP, and clear glass; light-gray enamel finish is standard. For biaxial lamping, flight lists for $325. 6. Easel is also ADA-compliant, offering custom bracket details within a standard-component design. Light from an "invisible" 28W 2D fluorescent is diffused through front and back panels of glass, perforated metal, and acrylic. [illegible] for wet locations, [illegible] offers [illegible] options and three [illegible] designs (a [illegible] grille is shown). [illegible] can be [illegible] CFL, 100W incandescent, or [illegible] metal halide lamping. [illegible]-VISA. [illegible], Milwaukee, Wis.



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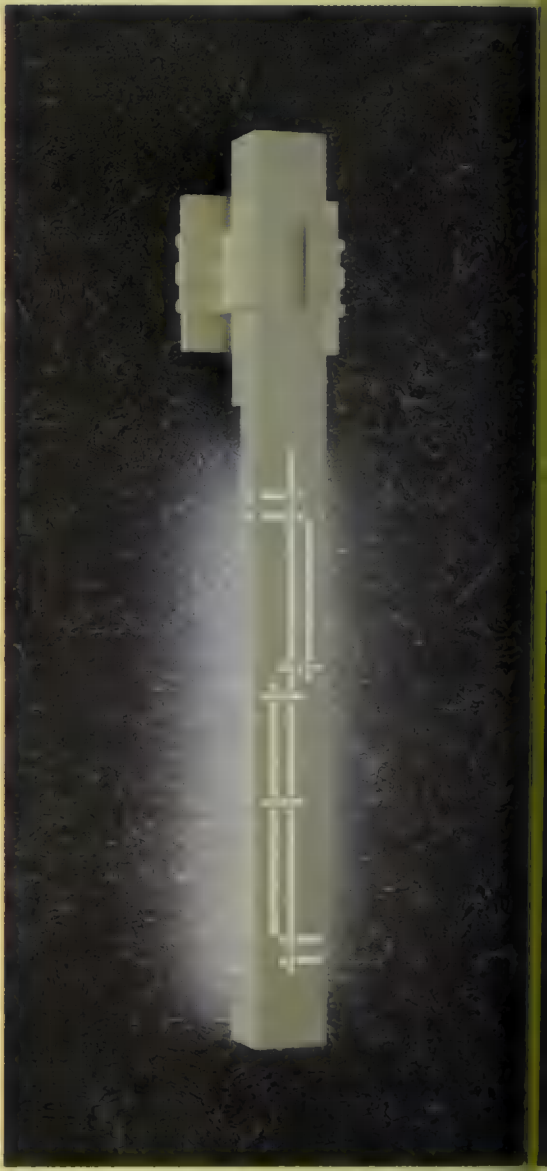

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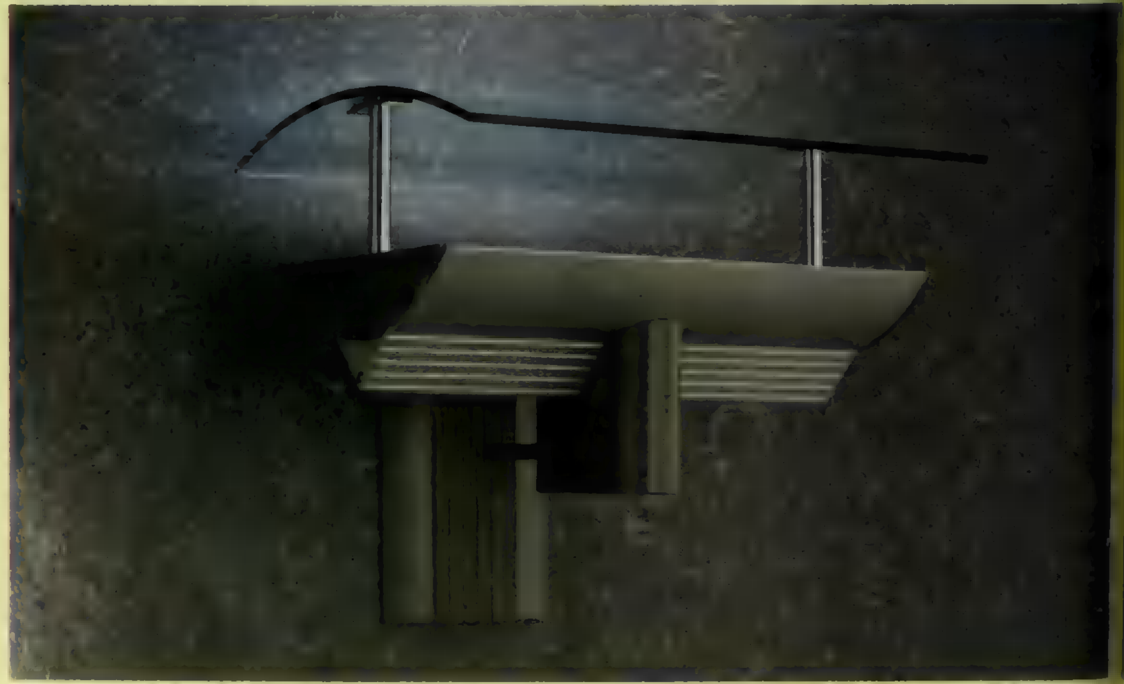
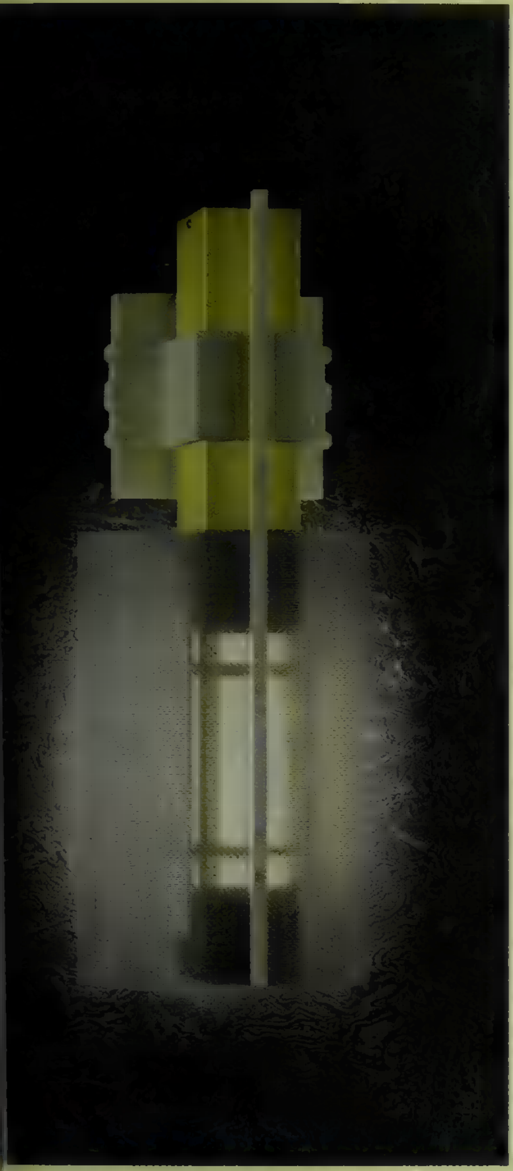


5

© Tim O'Brien, Photography Unlim

Yankee Ingenuity

345. Low-voltage lighting
A Connecticut firm puts its own "really quiet" toroidal (doughnut-shaped) transformers into unique, inexpensive low-voltage fixtures. A display or accent light, the Exotrac (1) uses clothespin-like clamps to hold bi-pin lamps in contact with each side of thin metal conductor strips. Adjustable brackets fasten the rigid-yet-flexible track to ceilings or walls. Hockey Poc lamps (2) put the transformer in the base; a gooseneck aims a 20W reflector lamp. Units can sit on a desk or hang on a wall. 203/367-5188. Tortran, Inc., Bridgeport.



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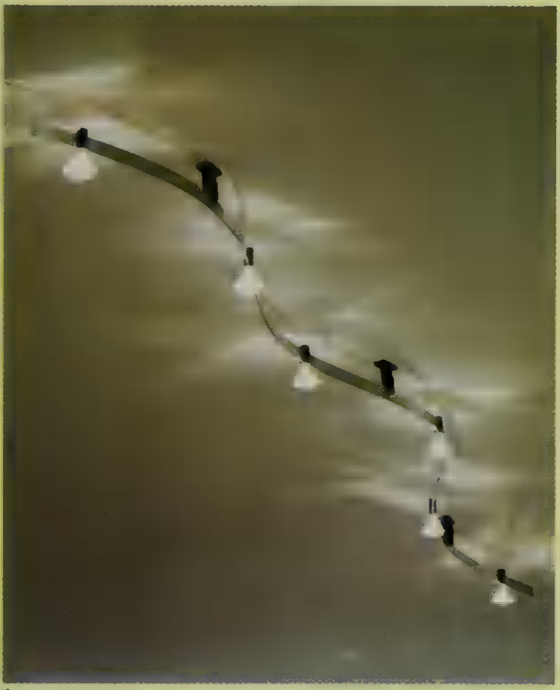

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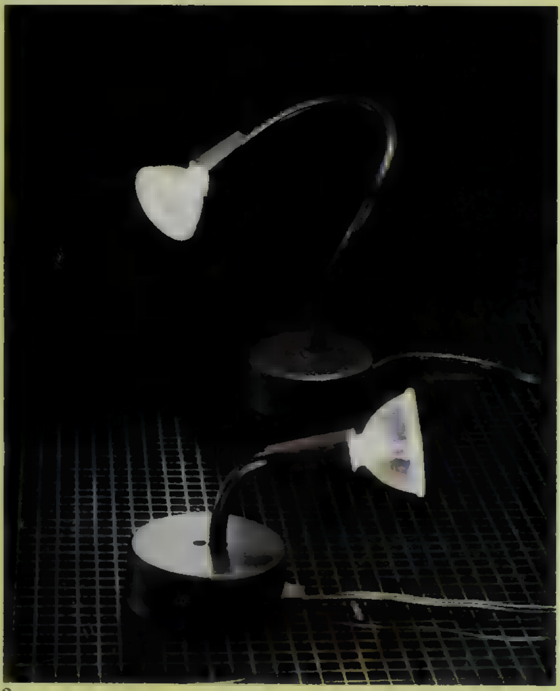

2

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For the efficient, high-performance line-voltage arena, we've improved on our pioneering capsylite technology, removing the diode and the flicker. They're available in a wide variety of wattages, diameters, and beam patterns. We also offer the broadest selection of double ended (RSC) halogens in the industry.

In the low-voltage category we feature our versatile TRU-AIM® MR-16 line, which combines consistently superior color rendition and high output, with low temperature and long life. We make them in a full range of wattages and beam spreads and even in our exclusive bi-color format. We also have the industry's best selection of high quality bi-pins.

Best of all, every one of our innovative products is backed by the dependability and service commitment that has made OSRAM SYLVANIA the leader in the field of light. Call 1-800-LIGHT-BULB and let us help bring your designs into the light of day.

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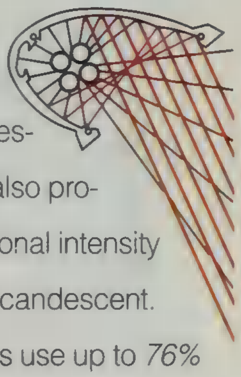
Imagine the optical control of incandescent lighting and the energy efficiency of compact fluorescents — that's what **elliptipar's** new line of 4X luminaires is all about.

4X™ luminaires from elliptipar — a revolution in lighting.

The 4X's revolutionary design (patents pending) focuses the light of two long twin-tube compact fluorescent lamps to deliver *four times* the lighting impact of ordinary fluorescent fixtures. It also provides the directional intensity and feel of an incandescent. Yet 4X luminaires use up to *76% less energy than incandescents.*



elliptipar's 4X luminaires for lighting walls and ceilings can be surface or track-mounted, semi-recessed or concealed, and come with remote or integral electronic ballasts.

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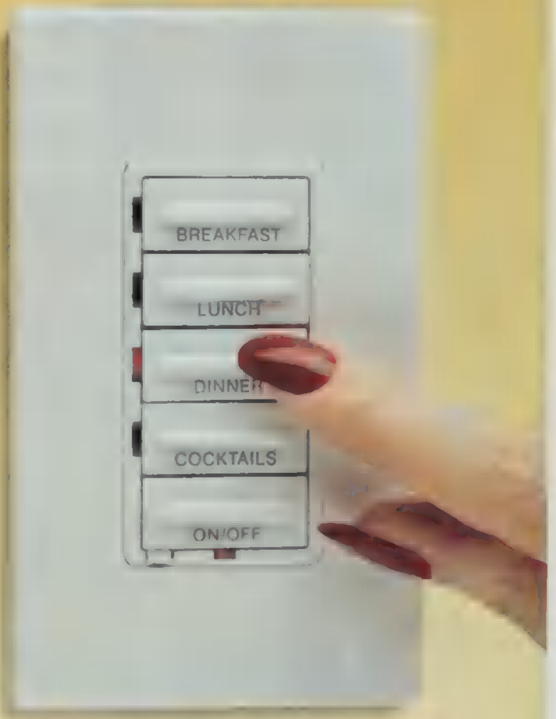
One touch of SCENE SELECT and it's dinner time!



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Leviton MicroDim Scene Controls make today's scene select technology user friendly by eliminating bulky centralized lighting control multiplexers and multiple control switches. You can easily create the kinds of "moods" you want by pre-setting groups of lights at various levels. [illegible] is one little touch of one [illegible]

[illegible] information, write to [illegible] Co. Inc., 59-25 Little [illegible] Little Neck, NY 11[illegible] [illegible]20.

LEVITON

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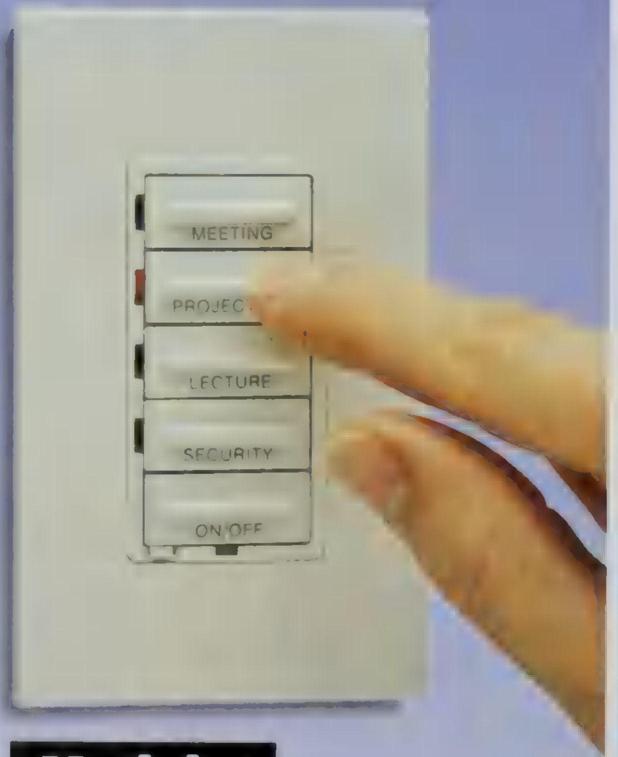

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An advanced microprocessor technology is the key to our new MicroDim Scene Controls. They transmit data like a small computer network. And because they're modular, control can be tailored exactly to the number of loads being controlled. The result is greater capacity and flexibility—great news for architects and engineers.

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LEVITON

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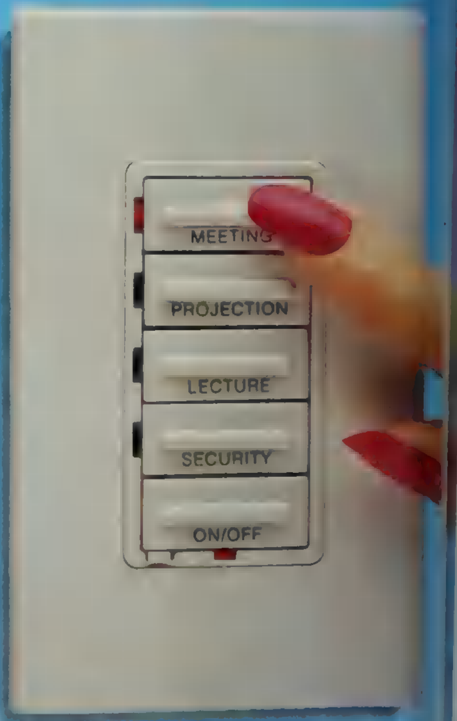

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LEVITON

design by Renato Toso and Noti Massari

Vittoria

suspension

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HAND-BLOWN MURANO GLASS
AVAILABLE IN FIVE SHADES

wall P2

table T1

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Specify Litecontrol, for lighting that works, and lighting projects that work.

LITECONTROL

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Litecontrol confirms its firm commitment to accepted sound environmental policies and practices in design and manufacturing.

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The Nostradamus of Lighting: How Did Her Predictions Fare?

Recently Jules Horton, of Horton•Lees Lighting Design, faxed me a page of predictions he'd unearthed from a musty cardboard file-storage box, and claimed they were made by "a palmist and advisor" some 15 years ago. Naturally, this predates "Diana Ross's Psychic Hotline," so I can only assume these visions were conjured up by one of Jules's clients, who either couldn't pay for his lighting services after buying beaded curtains, or wouldn't pay because she saw the future of her palmistry parlor, and it was full of fizzled electronic ballasts. Amazingly, however, some of them have nearly come true:

- "Lighting designers will become an educated lot, since most major universities will have a four-to-five-year degree program." Not quite, but at least a few universities now have such programs.

- "The practice of lighting design by electricians, plumbers, fixture salesmen, rental agents, and other sundry professionals will be considered a misdemeanor." Not quite, again, but at least a group called the National Council for the Qualification of Lighting Professionals did take a crack at establishing some minimum education and examination standards. Unfortunately, only the NCQLP board members have done time so far.

- "CRT screens will replace Xerox machines, and office lighting will become fully task-oriented." This is truly an amazing prediction, considering that the personal computer had hardly been invented in 1980. Task-oriented was what people were supposed to be, not lighting fixtures.

- "Disco systems will have to be approved by ophthalmologists and otolaryngologists." Disco? What is disco?

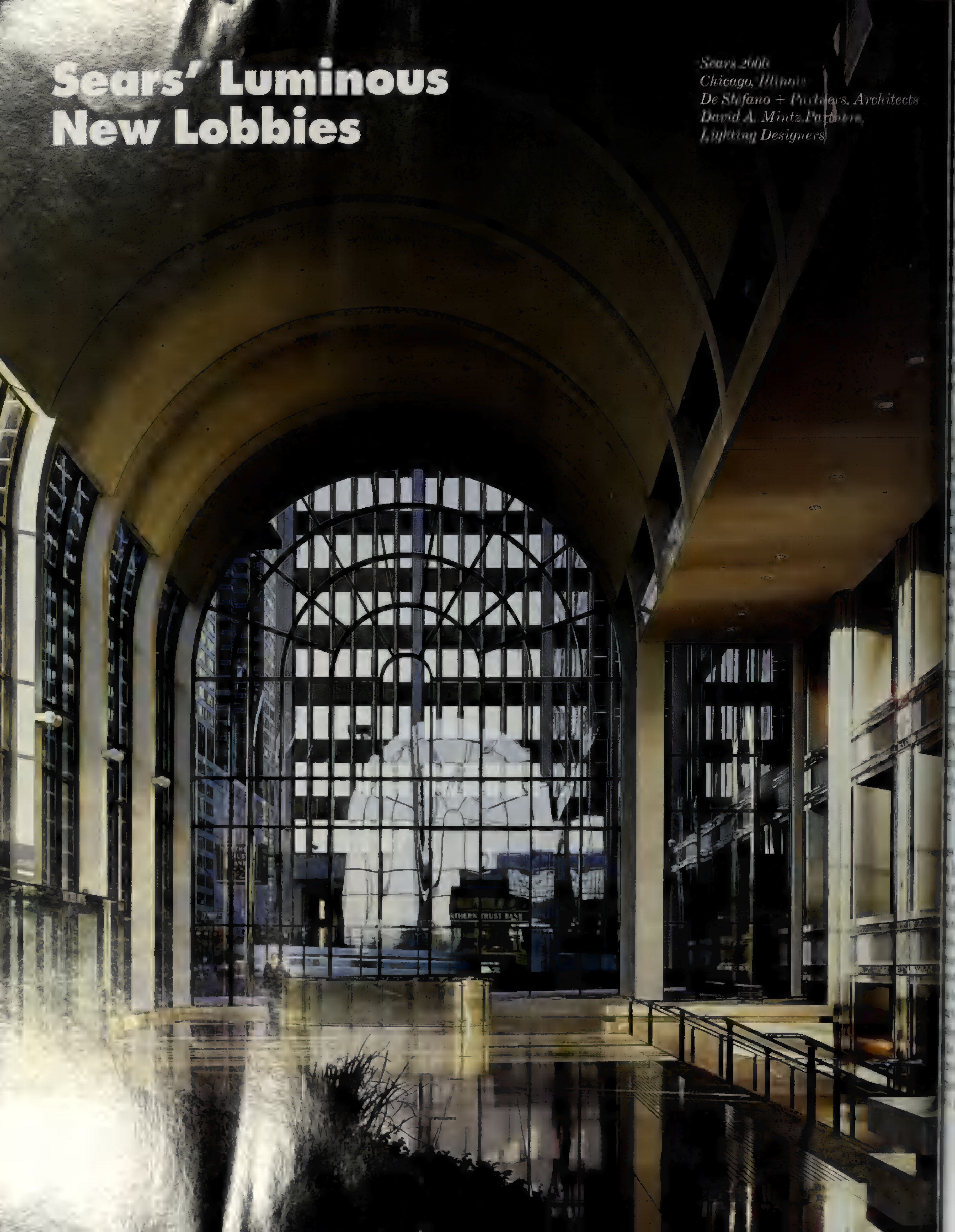
The number of innovations not mentioned by the Nostradamus of Lighting is truly amazing; for a look at some that have worked, and some that still need work, see James R. Benya's column, "Lighting on the Bleeding Edge," in this issue.

By the way, I think in the years ahead we can count on more predictions via Jules Horton. I hear he now has his own *personal crystal ball.* And, task lighting for it. *Charles Linn*

nufacturers' Sources
ed on page 40

Sears' Luminous New Lobbies

Sears 2000
Chicago, Illinois
De Stefano + Partners, Architects
David A. Mintz Partners,
Lighting Designers



Sears, Roebuck and Co. decided to abandon the world's tallest
lding for the suburbs, it was clear the 1970s-vintage tower—meant
he beginning to serve Sears and few other tenants—would have to
lergo a transformation to work as a spec-office building. Public
ess, the lobby spaces, and circulation were poorly set up for multi-
ant use, and after nearly 20 years, the original lobby finishes were
n out. The original lighting was mostly inefficient incandescent,
in need of an overhaul as well.

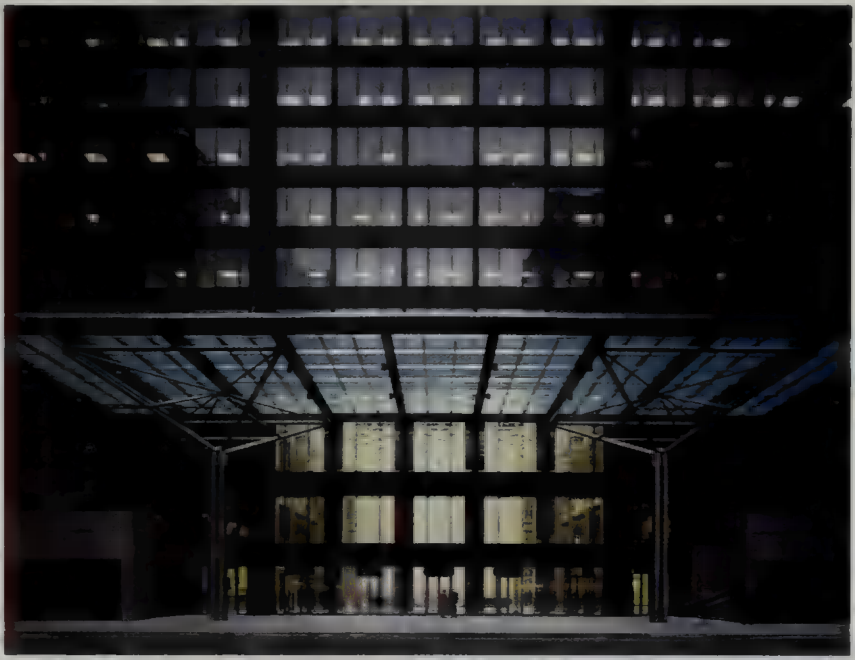
rid Mintz Partners and De Stefano+Partners worked together to
ct the transformation, starting with improving access to the build-
On the east side, off Franklin Street, an existing plaza was
ned up to reveal the east entry, and covered by a monumental
opy (right), lit at night by metal-halide downlights. On the west
e, off Wacker Drive , where a vaulted pavilion had already been
ed in front of the building after completion (opposite), Mintz
orked blue-glass filtered, high-pressure sodium uplights so they
ld accommodate metal halide, and added compact fluorescent
nlights in the new soffit over the stairs.

main feature of the redevelopment was the creation of two, three-
y lobbies on Franklin and Wacker Drives (following pages). "For
se, the architect imagined a massive hanging grid—somewhere
ween a hanging grid and a gigantic chandelier," says Mintz. Statis-
for the hanging grids are impressive. The Franklin Street lobby
ndelier is approximately 55 feet by 48 feet, weighs about 20,000
nds (not including the glass panels), and is suspended from over
stems, some that carry weight, some that carry power, and some
are dummy stems to fill out the pattern established by the others
size of the Wacker Drive lobby chandelier is similar). "The grid is
le of stainless-steel-clad aluminum extrusions and conceals 3-ft
rescent lamps—over 360 of them in the Franklin Street lobby—
h uplight the white ceramic-tile ceiling."

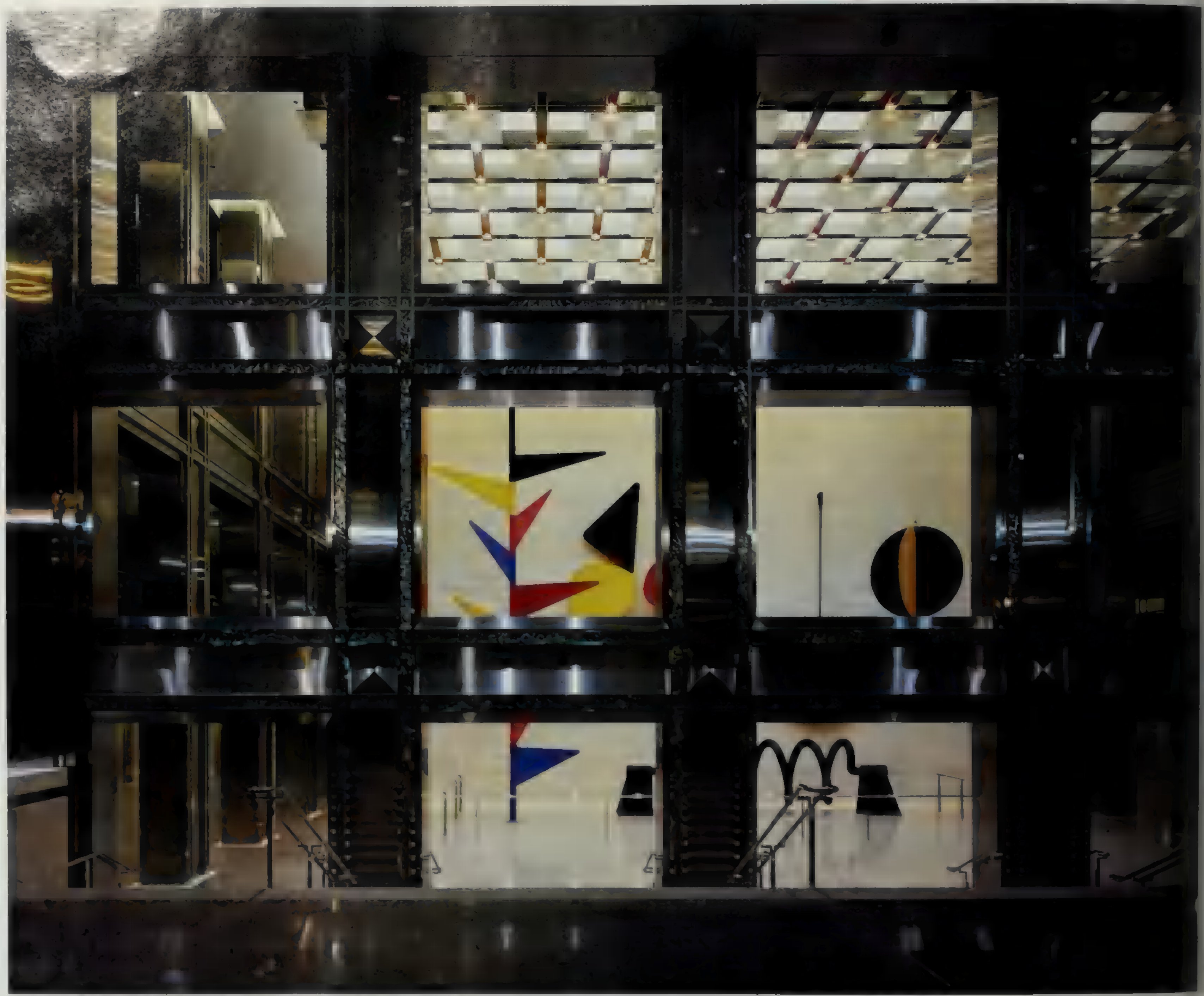
ninated-glass panels, 3-ft square, clear at the borders and stippled
ne middle, are suspended beneath every other intersection of the
members. Over each glass panel is a 150W G40 long-life lamp on
nming circuit. Downlighting comes from 100W metal-halide
38 lamps in cans which are at alternate intersections with the
ging glass panels (detail next page). "The entire chandelier was
ufactured in sections and assembled at the manufacturer's plant
r to being shipped and reassembled at the lobby. It's big," says
tz.

es in each corner of the lobby were a single-story in height.
e, the lighting designers replaced existing incandescent down-
s with compact-fluorescent fixtures, and incandescent troughs
added to wash the sloping travertine walls that separate retail
s in each corner of the building from the lobby (bottom right).
color of the CFLs had a side benefit. Besides brightening the
e and saving energy, they also grayed out a rose-colored tone in
xisting stone flooring that the architects weren't happy with and
no budget to replace. "We were able to change a material without
ng to replace it," according to Mintz. In contrast to the CFL,
ndescent wall-washers recessed in troughs were used to illumi-
the interior corridors between elevators, brightening bands of
travertine flooring that abut the walls. These are controlled by a
rammable dimming system to extend lamp life and save energy.
les Linn

© *Nick Merrick/Hedrich Blessing photos*

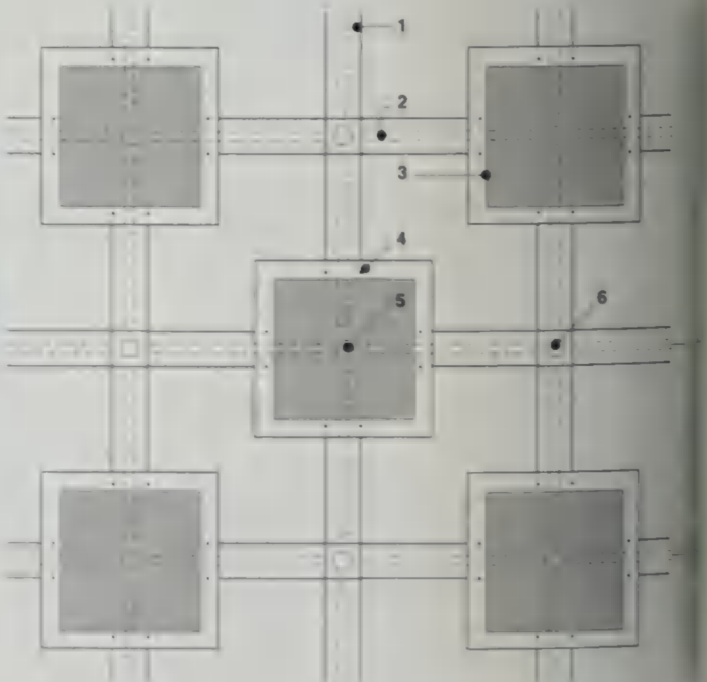


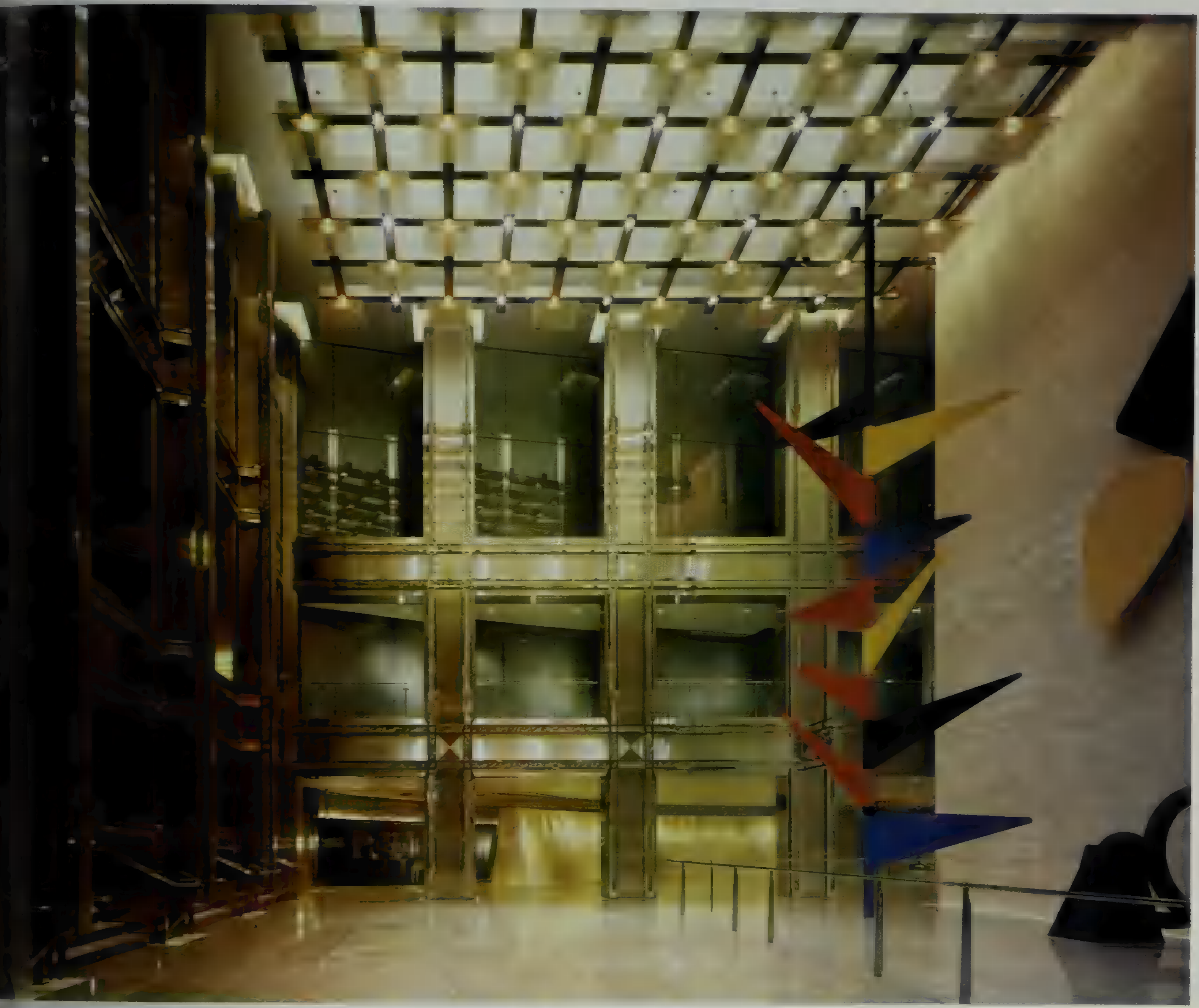
Sometimes a little change in the lighting can contribute a great deal. In the Sears Tower's entry pavilion (opposite), existing uplights that had been lamped with blue-filtered, high-pressure sodium lamps—which yielded a garish color—were switched to more pleasing metal halide. Metal-halide can lights also illuminates the Sears Tower's new entry canopy (top), while incandescent trough lights brighten the lobby's sloping travertine walls (above).

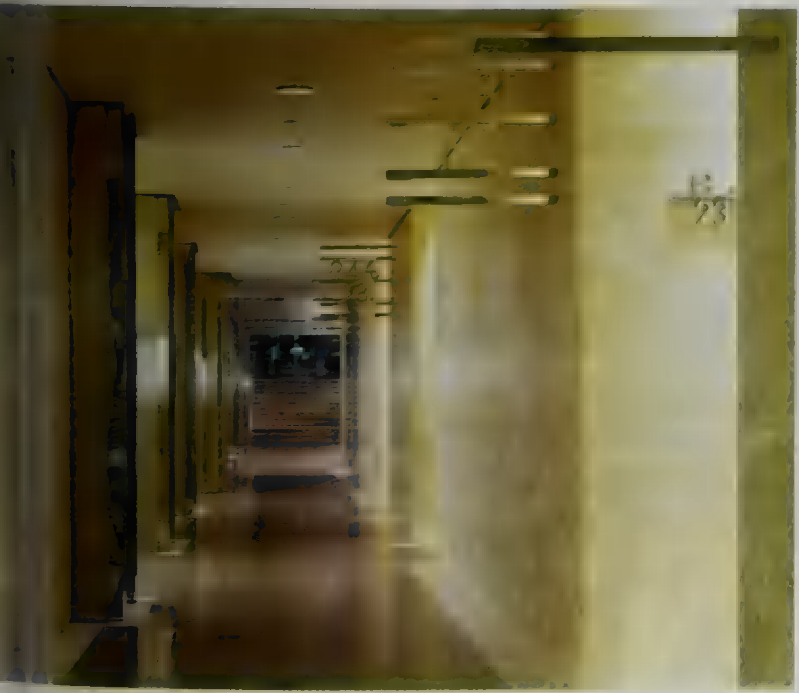


Mega-scale chandeliers cover the ceilings in the newly created three-story lobbies for Franklin Street and Wacker Drive (above and opposite). The grid of stainless-steel wrapped-aluminum extrusions, suspended from white ceramic-tile ceilings, conceals fluorescent uplighting (detail right), as well as providing anchor points for PAR38 metal halide downlights and [illegible] incandescent lamps. The [illegible] lamps are mounted [illegible] square laminated-[illegible] The aluminum [illegible] Franklin Street lobby [illegible] panels, not [illegible]

1. [illegible] aluminum with stainless-steel veneer
2. Three-foot fluorescent strip uplight
3. Laminated glass panel, clear border with stippled field
4. Glass panel hanging rods, eight per panel
5. 100W G40 incandescent lamp over glass panel
6. 100W metal halide PAR38 lamp





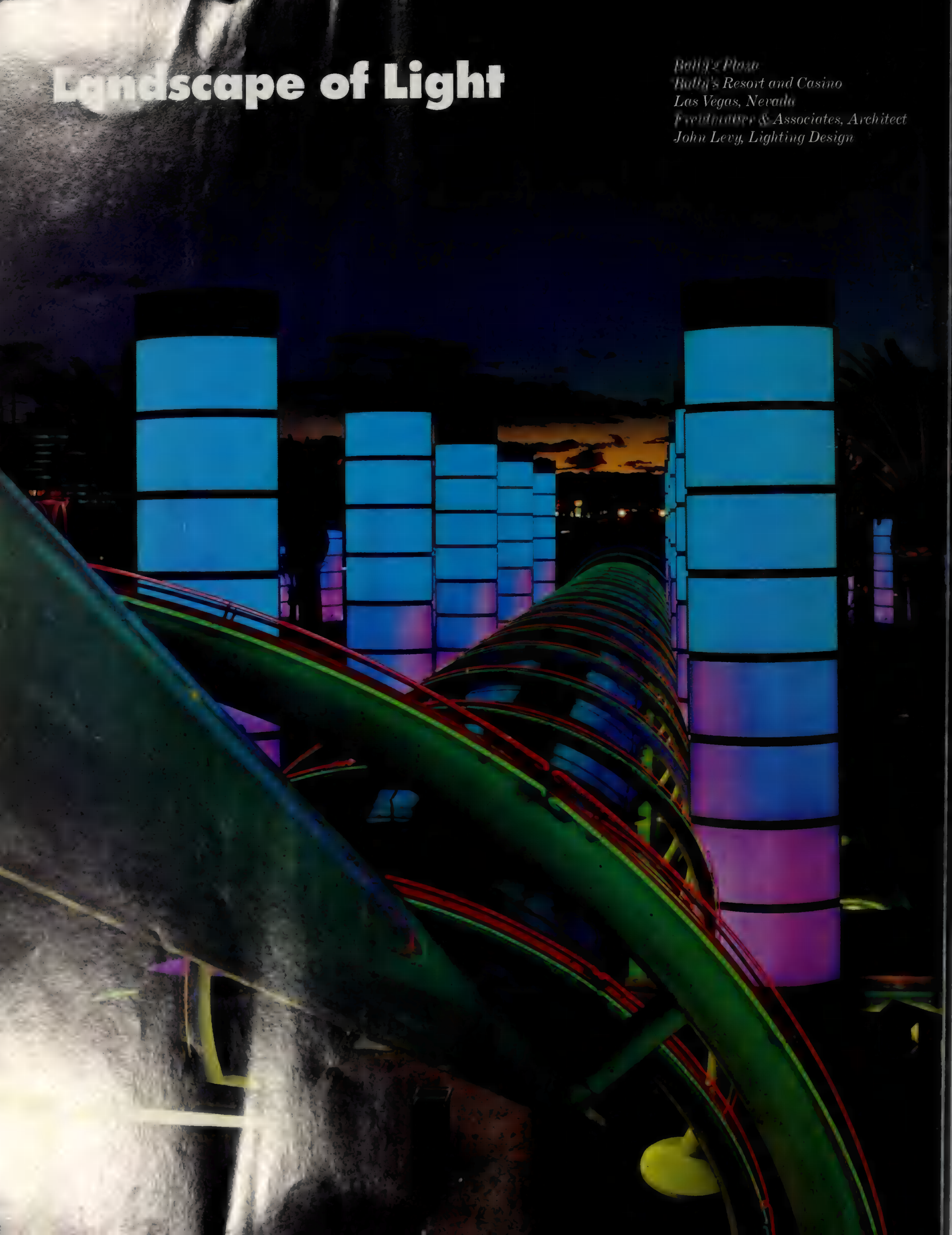


New incandescent wall washers were placed in the corridors within the elevator cores (left) to brighten travertine walls and pick up a band of travertine flooring at the base.

Credits
Sears 2000
Chicago, Illinois
Redeveloper: *The John Buck Company*
Architect: *De Stefano + Partners*
Lighting Designer: *David Mintz Partners*
Consultants: *Environmental Systems Design (mechanical/electrical); Skidmore, Owings, & Merrill (structural)*

Landscape of Light

Bally's Plaza
Bally's Resort and Casino
Las Vegas, Nevada
Friedmutter & Associates, Architect
John Levy, Lighting Design



ld parking lot outside Bally's Resort and Casino in Las Vegas has
en transformed into a light and sound extravaganza that attracts
wds of awed spectators every evening. "We were quite determined
create a radically different entry experience," says lighting design-
John Levy. Within weeks of being retained as the lighting designer,
vy and his team created a detailed model of the proposed design
ng with an animated concept video of the seven-minute light and
nd show to convince the client to create this surreal landscape of
nt.

olonnade of 28 illuminated vertical pylons alternating with huge
nary Palms dominate the landscape. Ranging in height from 18
t to 38 feet, the glowing pylons flank a neon-lit, spiral walkway that
ds to the casino. Constructed of perforated metal backed by an
l acrylic sheet, the pylons house 15-mm neon tubes running top to
tom and spaced six inches apart. The tubes are red, blue, and
en, so that cross-fading between them creates a wide range of
ors. These pylons run a continuous, slow color change, except
ing the seven-minute shows, when they change according to the
t of the music. Also, a top cap in the pylons contains four 1000W
R lamps, two strobes, and a gold-scan moving light which is also
reographed to the music.

architectural design, by Las Vegas architect Freidmutter &
sociates, incorporates four people-movers linked to escalators
ich pass 20 feet above the hotel's ground-level main entrance,
ivering eager guests directly into the casino. A spiral "slinky" out-
d in three-color neon appears to circle the people-mover, adding
ther whimsical element to the landscape. The slinky supports a
nslucent sun screen that also houses a six-inch-diameter continu-
fluorescent light tube. The custom tube incorporates a suspended
aker every eight feet, which pipes out the music of the show as
l as advertisements and announcements from the casino. At night
translucent screen is lit from above using the PARs on the pylons
hat the guests pass under a continually changing ceiling linked to
music. Around the pylons and under the people-mover, a series of
ntains and waterways recalls a sort of space-age version of ancient
dens, lit by underwater lights with custom color lenses.

y's team worked with the neon manufacturer to create custom
tel shades for the "slinky" that would be in harmony with the
rs of the pylons. These are also choreographed to change along
the pylon lights. An original musical score, written by Levy's
duction arm, "Really Big Time Productions," has been used to
reograph the seven-minute light and sound show that occurs three
es an hour. The spectacular show, which incorporates not only the
ting within the pylons but also the landscape and underwater
ts and fountain jets, is a theatrical event, unique even by the
rful standards of Las Vegas. *Nayana Currimbhoy*

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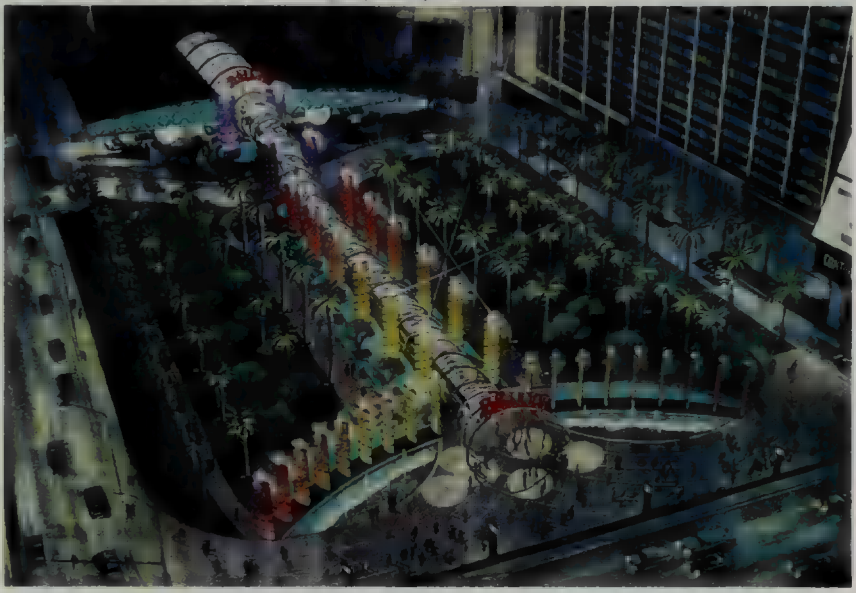
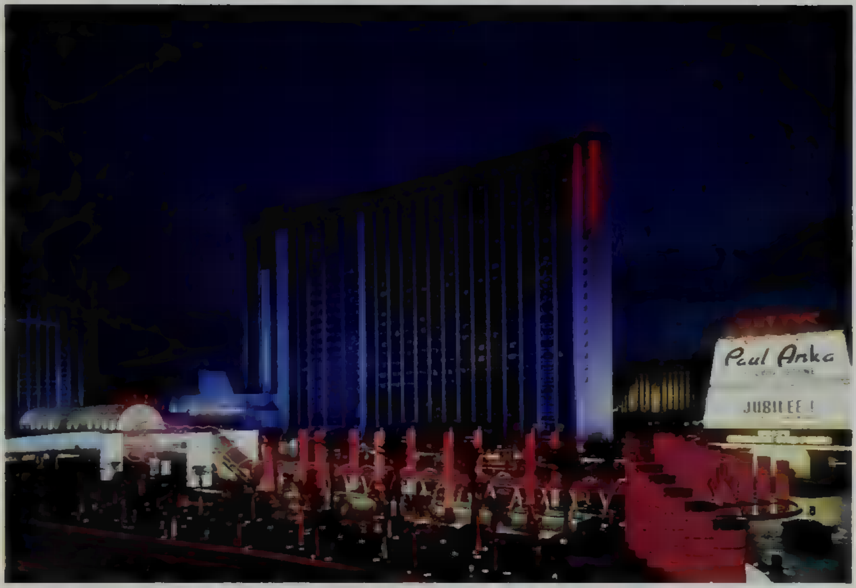
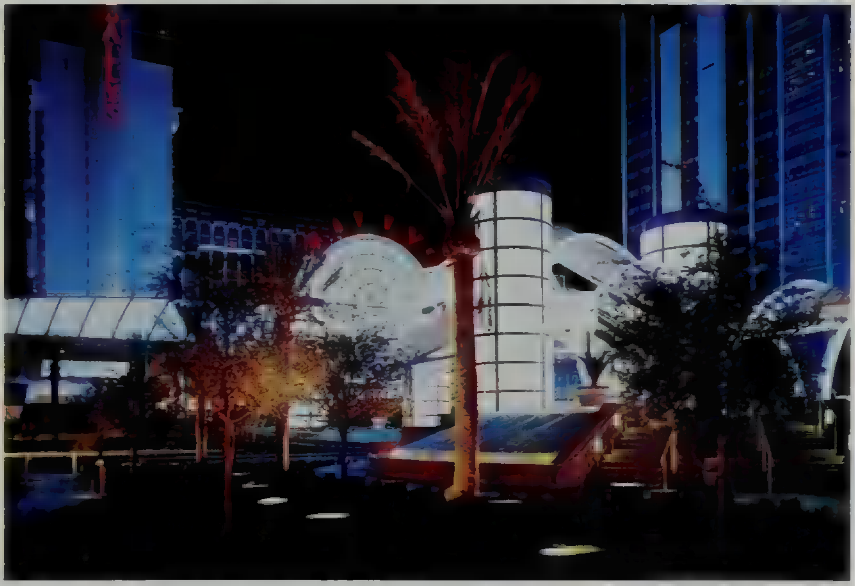
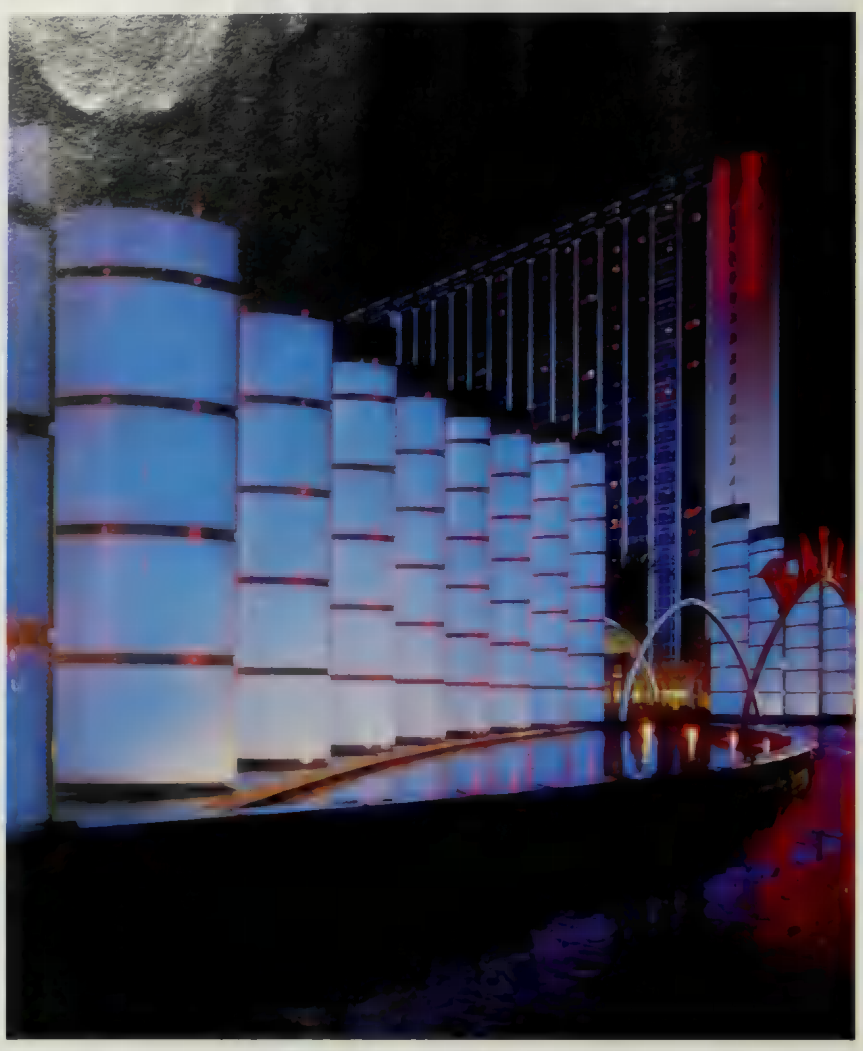
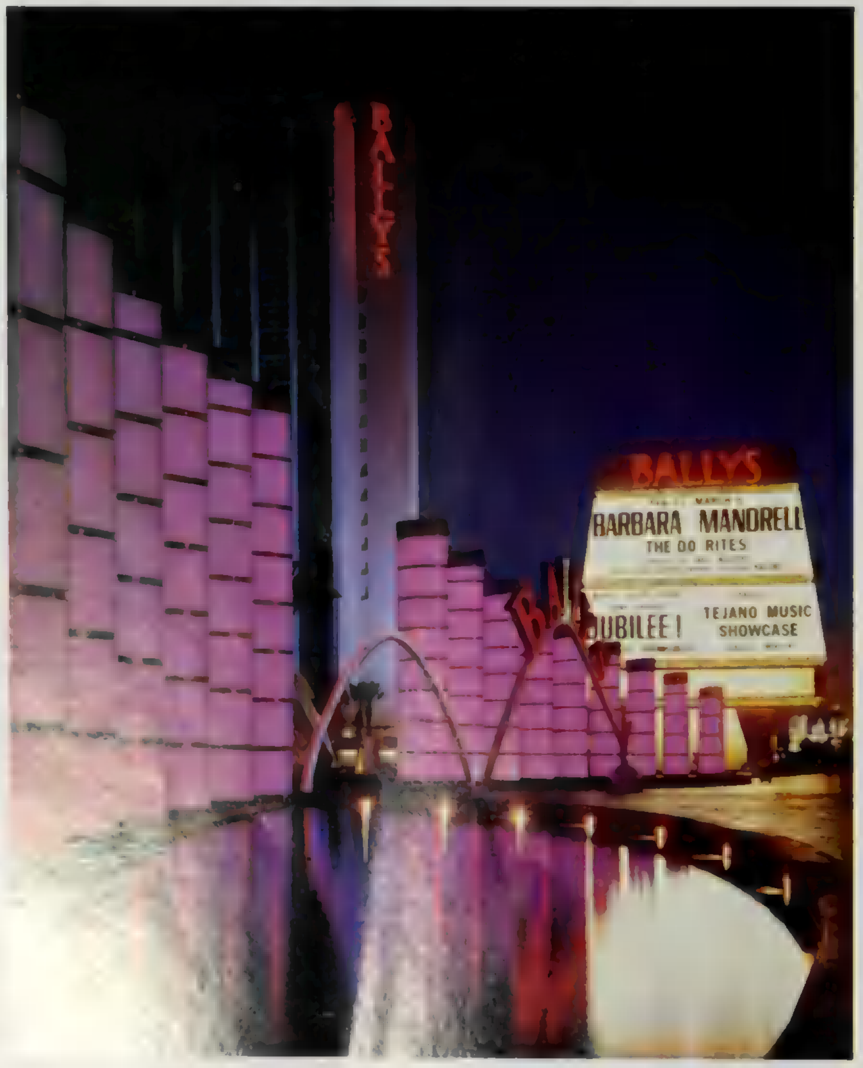






Large, brightly lit pylons, palm trees, and colorful fountains (opposite and above) flank the walkway of Bally's Casino in Las Vegas, resembling a space-age version of the rows of pillars that led to ancient temples and palaces.

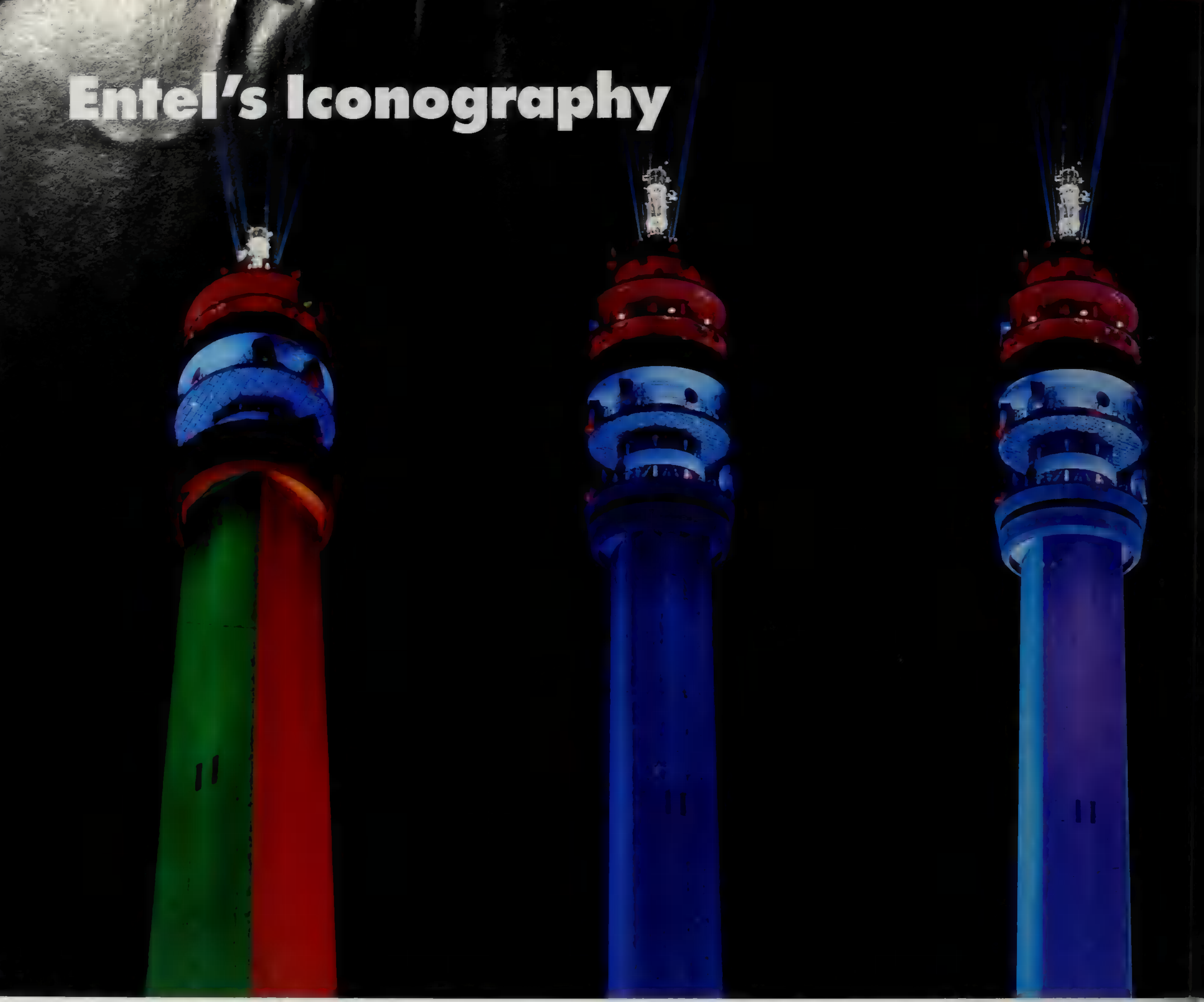




Created from an old parking lot, the lighted landscape of fountains, spirals, and columns attracts large crowds of onlookers. Constructed of perforated metal and backed by an opal acrylic sheet, the pylons, which range in height from 18 to 38 feet, contain 15-mm neon tubes running from top to bottom. Defined by a neon-lit giant spiral "slinky" (opposite) the walkway to the casino is also flanked by flowing water that is illuminated by underwater lights.

Credits
Bally's Plaza
Bally's Resort & Casino
Las Vegas, Nevada
Architect: *Freidmutter & Associates*
Lighting Designer: *John Levy*
Show Designer: *Really Big Time Productions—John Levy, producer; Stig Edgeson, musica director; Jeff Calderon, lighting director*
Waterscape Design: *J. Harle Glenn & Associates*
Landscape Design: *Campbell Campbell*
Graphic Design:
Communication Arts

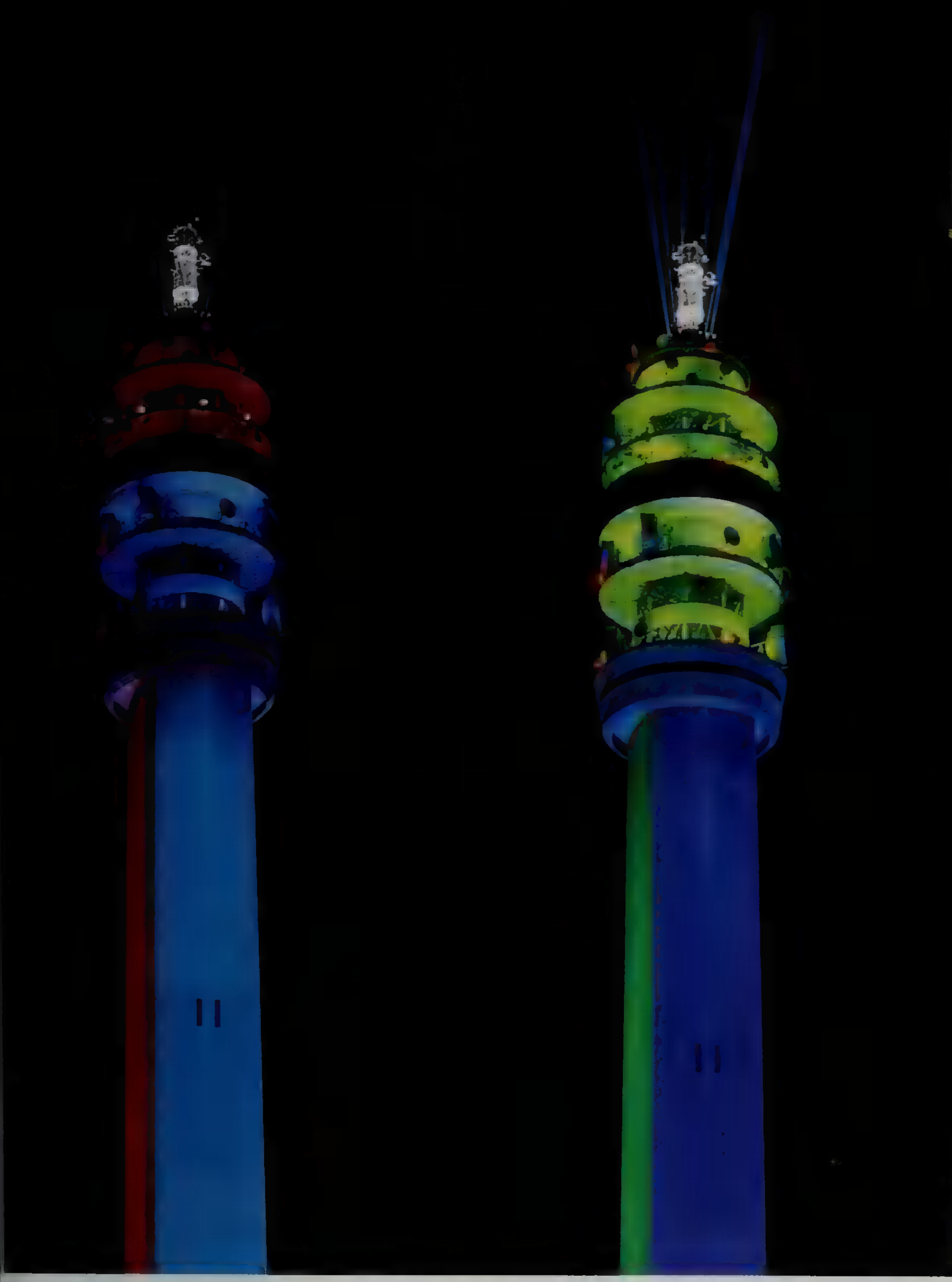
Entel's Iconography

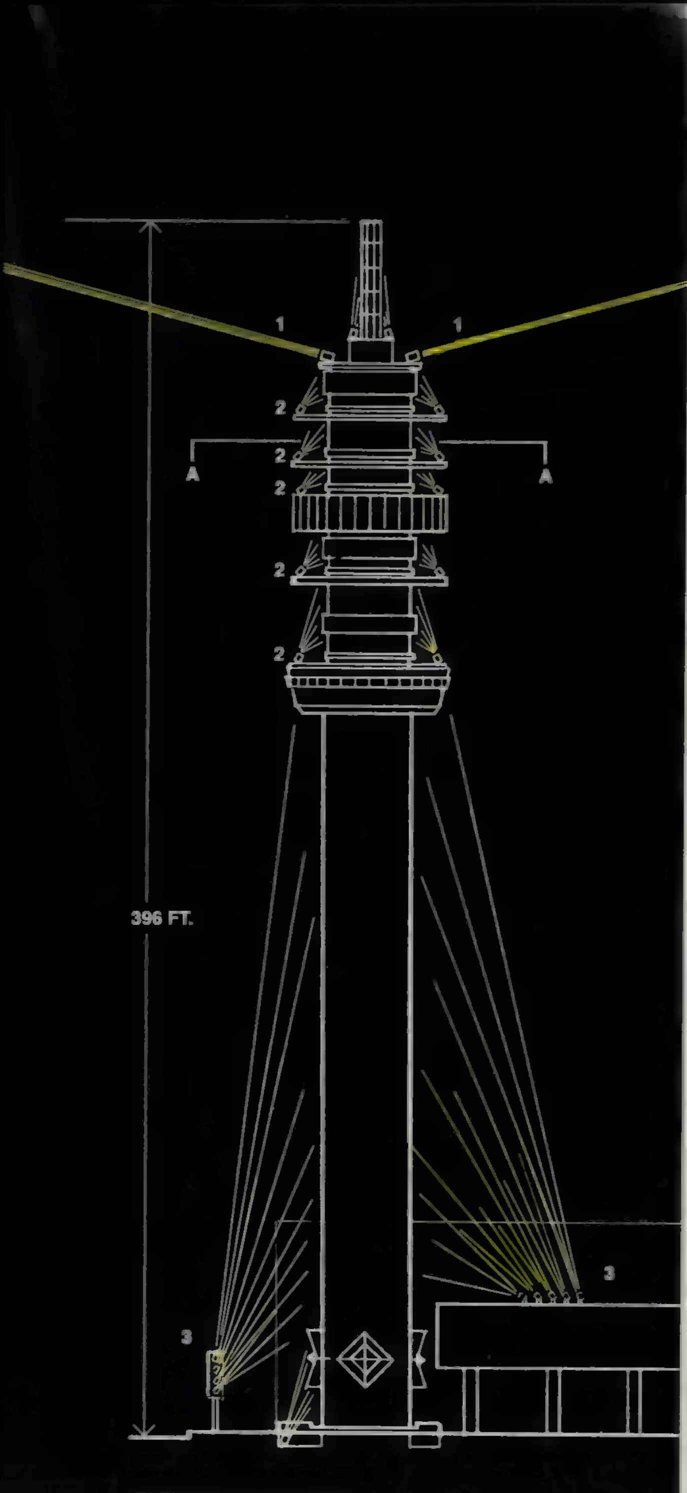


When Chile's long-distance telecommunications industry was deregulated, Entel, the government-operated carrier, suddenly found itself in need of a corporate identity. Alex González, Entel's design consultant, hit upon the idea of using Entel's microwave tower in downtown Santiago. It is a symbol no one would mistake for anything else; it towers 40 stories over a city where most buildings are barely more than a story in height. And "he proposed they light it up," says lighting designer Paul Gregory. "They called Alejandro Siña, a Chilean light artist, and Alejandro called us."

New York City-based Gregory, who has designed lighting for towers and interiors the world over, presented his clients with a wide variety of choices that related to variables such as weather and time. "But what they really wanted was just a beautiful display of color that was [illegible] and interesting and that would reflect well on the company." [illegible] and his associates came up with slides of 100 possible [illegible] different blends of colored light, and budgets for [illegible] installation, and labor for relamping and maintenance. [illegible] was to use filters that would be changed manually [illegible] colors were changed. But it would take two workers at least a day to change the fixtures' filters. Gregory's second scheme, which was adopted, uses dimmable lamps with dichroic color filters attached, as well as equipment fitted with moto ized filters of blue, green, and red whose combinations are altered b computer to make color changes in seconds.

Eighty of the computer-controlled fixtures, known as Vari-Lites, ar used at the base of the tower, either mounted on poles or the roofs o nearby buildings. The optics of the 700W metal-halide fixtures allow the luminaires to be aimed in tight formation up the side of the towe making possible spectacular gradations of color (tower elevation opposite). At the five upper platforms of the tower (section opposite 250 400W metal-halide luminaires were used. These also have red green, and blue filters installed on them, but are dimmed in differen combinations to alter color. Just to extend it a bit farther into the night sky, the Entel tower is crowned by six motorized 7kW xenon searchlights, whose beams can to move to 0-, 45-, or 90-degree angl to the tower. The entire fixture layout is controlled by a programmable dimming system and color schemes are changed frequently, as easily as inserting a disk into a personal computer.



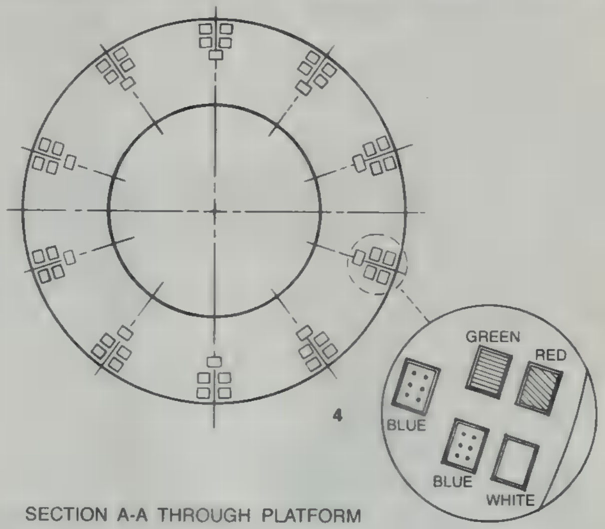


ELEVATION OF TOWER

gory conducted many mockup tests on filters and equipment at
erside Church, a prominent edifice in New York City, that can be
ved from several miles away, across the Hudson River. But the
ing didn't end there. In Chile, Entel engineers worked with
gory to assure the lighting equipment wouldn't interfere with the
communications equipment. "This was a dream job," says
gory. "We had the complete support of the client, as well as their
nical support and crews. And we did the job from start to finish in
nonths." Was lighting an ingenious way to establish the tower as
el's icon? "You can't miss it." *Charles Linn*

dits
ject: *Entel Tower*
tiago, Chile
nt: *Entel Chile*
ting Design: *Focus Lighting—Paul Gregory, principal; Douglas*
associate designer
t Artists: *A+M Siña—Alejandro Siña, Moira Siña*
ign Consultants: *Diseñadores Asociados—Alex González,*
hele Labarth

1. *Six 7kW xenon searchlights*
2. *Nine groups of five 400W fixtures per platform*
3. *Groups of 700W fixtures, building and pole-mounted.*
4. *Typical layout of color filters at platforms*



SECTION A-A THROUGH PLATFORM

ighting Up harlotte's Heart

owntown Charlotte, North Carolina, zoning laws dictate that if you se a store front, you must create some architectural or artistic ect for the edification of passing pedestrians. For the restaurant Piazza, Jay Haverson's solution was to design a wall of light. king his cue from the geometry of the building mullions, Haverson, rincipal of the Connecticut-based Haverson Architecture and sign, created a colorful geometric stained-glass facade that, when klit at night, works as a spectacular, glowing street sculpture.

cased in 10 bays that wrap around three sides of the downtown ce building, the wall is backlit with warm fluorescent 20-watt ips at the top and bottom. Placed in a trough with reflectors, the orescents create an even wash of light that filters through the ght colors of the translucent wall to create a warm glow. A solid wall partition 18 inches behind the wall allows access to the light ughs.

e light wall effectively blocks daylight from the interior of the taurant. "We wanted to create a separate world within," says verson. The restaurant is located adjacent to an eight-story ium, which, with its sculpture and art displays, serves as a public seum space. The entrance to the restaurant, through the atrium, is nounced by brightly colored canopies highlighted with PAR38 nps. Conceived, according to Haverson, as a "reminiscence of a zza, or Italian town center," the 6,000 square-foot restaurant is igned with the palette of the Florentine landscape: travertine, re, and vine-leaf green. Stucco walls are accented with plaster- sh columns, and a terrazzo floor with touches of green and teal.

lighting has been divided into three areas. Cable-suspended 50W 16s with wide-spread lenses are angled to light the bar, tables, umns and the "moon." Made of an aluminum frame draped with ss mesh, the lunar crescent acquires a three-dimensional quality en spotted with the MR16s. The ceiling, painted dark purple and again, with the cable spots, becomes a metaphor for a starry night.

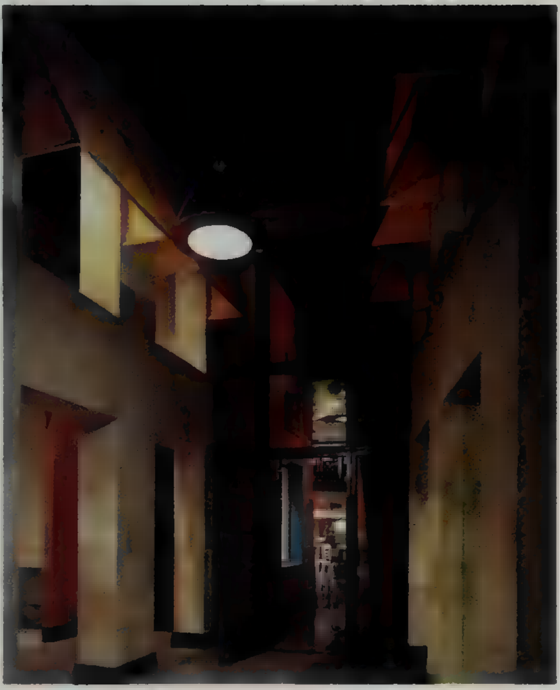
he mezzanine, MR16 spots have been randomly spaced to light es, walls, and other areas of interest. A private special-events n on the upper level is lit by simple 75W downlighting. The large hen, which also serves as a bakery and a catering space, is bright- t with a fluorescent pendant.

oughout the space, all walls are angled. The planes have been dis- ed in order to create a seamless ambiance in the center piazza. In rast, the perimeter is well defined by a freestanding wall, and a h of light from the cable fixtures. *Nayana Currimbhoy*

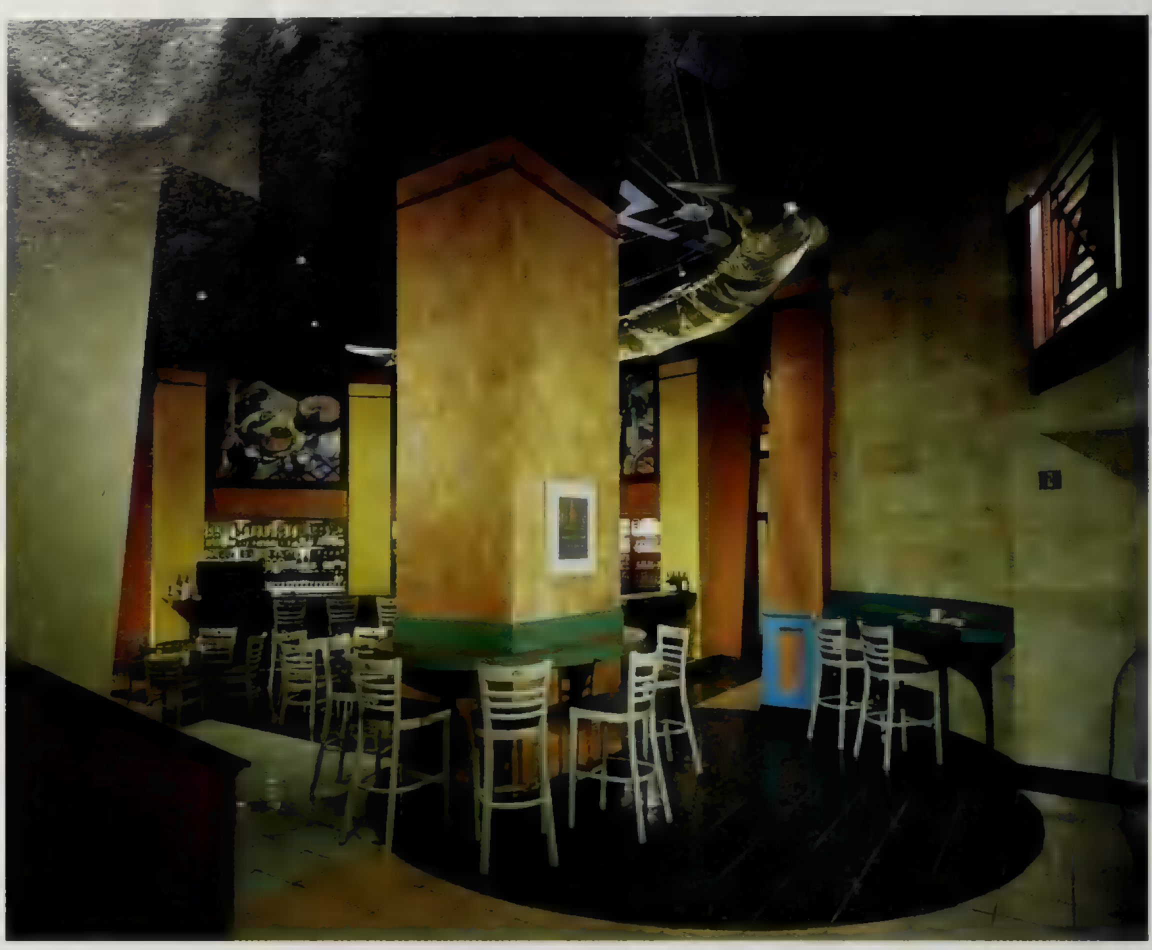
ana Currimbhoy is a freelance writer in New York City.

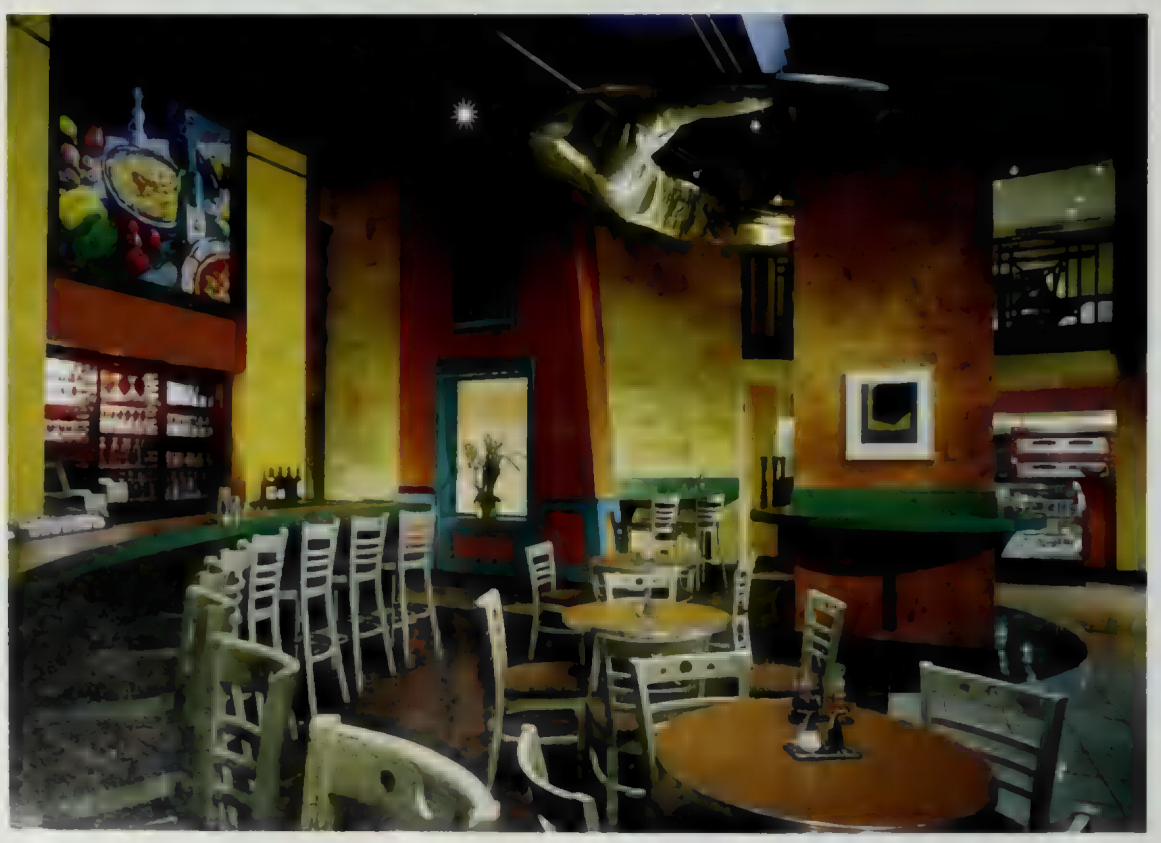
Si! Piazza Restaurant and Lighting Wall
Charlotte, North Carolina
Haverson Architecture and Design, Architect
Haverson Architecture and Design with
Primo Lighting, Lighting Design

© Paul Warchol photos



Custom opalescent glass panels, fabricated by Cocomo of Indiana (opposite and top) and designed by Haverson Architecture and Design, consist of a 10-color pallet. Taking their cue from the patterning of the building's mullions, the architects then backlit the wall with warm fluorescents set in reflector troughs. Two restaurants can be accessed through the atrium (above).





The light wall, with its accomp nying drywall backing, keeps daylight from entering the restaurant. The interior is lit MR16s suspended from cables that run through a deep purpl nighttime sky, accompanied b large moon made of aluminun and brass wire mesh and lit b MR16 spots. A mezzanine (rig allows additional seating and lit by randomly located MR16 pinpoints.

Credits
Lighting Wall and Si! Piazza Restaurant
Charlotte, North Carolina
Architect: *Haverson Architecture and Design*
Lighting Designers: *Haversc Architecture and Design; Prin Lighting—John Tremaine*
Design Team: *Palmer Ramst Ken Anderson, William Shepa Lupo, Christopher Ruehl*
Electrical Engineer: *Optima Engineering*
General Contractor: *Price-Davis Construction, Inc.; Skee Davis*

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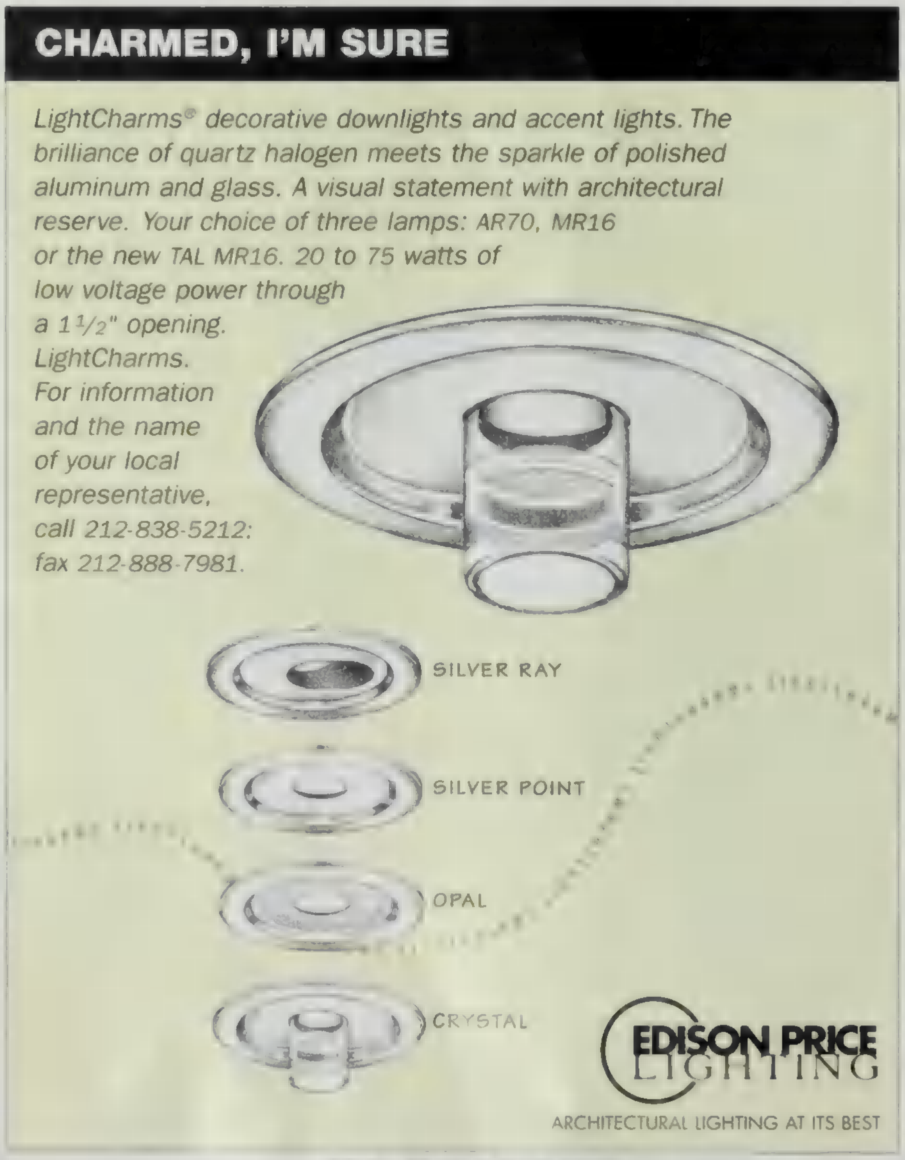

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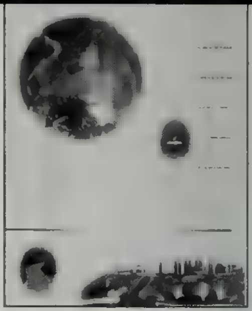
Product Literature/Lighting

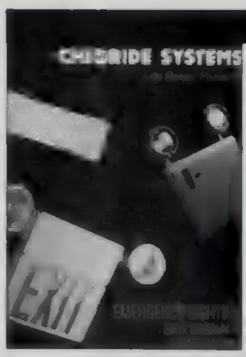
412. Furniture-mounted lighting
An 18-page color catalog illustrates a full range of low-voltage halogen and fluorescent lighting for furniture and cabinetry. Includes mounting options and information on miniature fixtures for task, accent, and display, especially for over-counter kitchen lighting. Haefele American Co., Archdale, N.C.



413. Fiber-optic lighting
Brochure highlights recently completed custom-designed applications of Lumenyte fiber-optic systems, including cool display-case lighting and decorative exterior installations. Text explains how solid-core, monofi ament fiber puts out more light than an equivalent diameter of bundled fibers. Lumenyte International Corp Costa Mesa, Calif.

414. Site luminaire
The Magnum exterior area light is one of several European-style designs that accept the new Philips QL lamp, said to have an operating life of 60,000 hours. A folder gives dimensions, lensing, and photometrics for all lamping options. Poulsen Lighting, Inc., Miami.

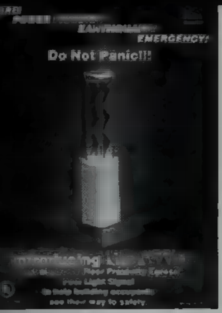
415. Energy-efficient downligh
An eight-page catalog introduces a new line of recessed downlights specifically designed to make best us of energy-efficient, horizontally mounted compact-fluorescent lamps Includes trim, ballast, and dimensio al data for all apertures. 708/559-5500. Conservation Technology, Ltd. Northbrook, Ill.



416. Emergency/exits
A 38-page catalog describes the safety advantages of this maker's Accu-Test self-diagnostic option available on emergency lighting and exit-sign units. Includes photos, dimensions, mounting, and graphics style choices for all life-safety fixtures. Chloride, Burgaw, N.C.

417. Imported fixtures
A 60-page catalog illustrates all Evolution designs, from pin spots to cable-hung chandeliers, giving label trim, and color options for a complet line of low-voltage lighting intended primarily for residential use. Evolution, Inc., Pompano Beach, Fl

For more information, circle item numbers on Reader Service Card.



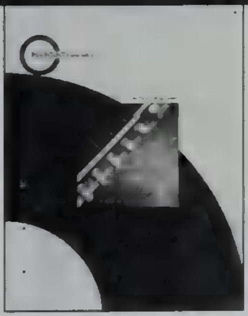
18. Evacuation lighting
ite-A-Way meets UL 924 and 1994
equirements as an aid to emergency-
racuation in conditions of poor
sibility. Xenon strobe lights,
ounted close to the floor on corridor
rners, illuminate over 150 feet.
ri-Guards, St. Louis.

419. Lamps for the home
Signature, formerly Acme and recently purchased by Venture Lighting, Inc., makes decorative sconces and table lamps of metal, glass, leather-wrapped brass, marble, and burled metal. A color catalog illustrates all current product offerings. Signature Lighting, Cleveland.

20. Decorative fixtures
new label under the JJI banner,
ac (decorative accent) lighting
fers American-made, listed fixtures
th a European flavor. Catalog
ows "Soft Industrial" designs, an
erpretation of factory fixtures of
e 1940s. d'ac, Mamaroneck, N.Y.

421. Glowing linear
One of several direct-indirect luminaires designed for high-wattage twin-tube bulbs, Lunos in made with shades of translucent faux alabaster. Softly diffused light eliminates VDT bright spots and balances brightness between fixture and ceiling plane. Excelite, Inc., Altoona, Pa.

2. Abuse-resistant
ix-page folder illustrates wall and
ling fixtures strong enough to
hstand attacks with a baseball bat,
with decorative touches that add
d looks. Luminaires are UL listed,
ny labeled for wet locations.
signplan Lighting, Inc.,
nchtown, N.J.



423. Cool display lighting
Museum, jewelry, and retail lighting installations demonstrate the cool sparkle produced by lensed, aimable fiber-optic spots. Gray-metal tracks may be cut to fit any display case. PinPoint Fibreoptics, Beverly Hills, Calif.

continued on page 41

more information, circle item numbers on Reader Service Card.

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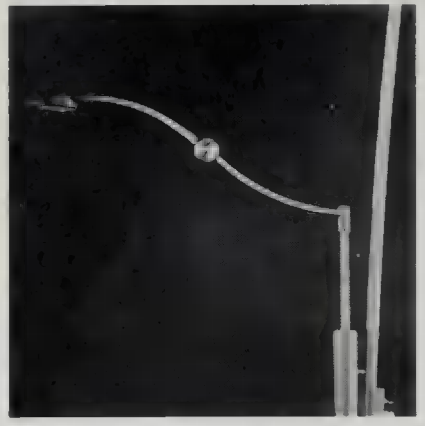
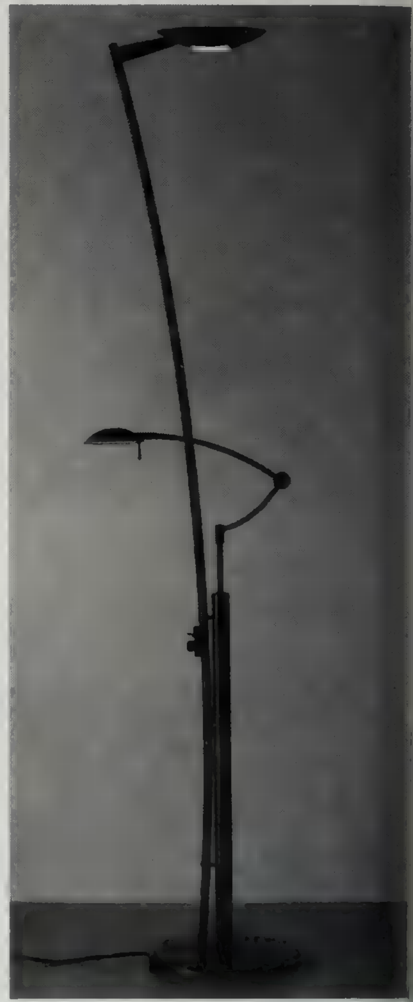
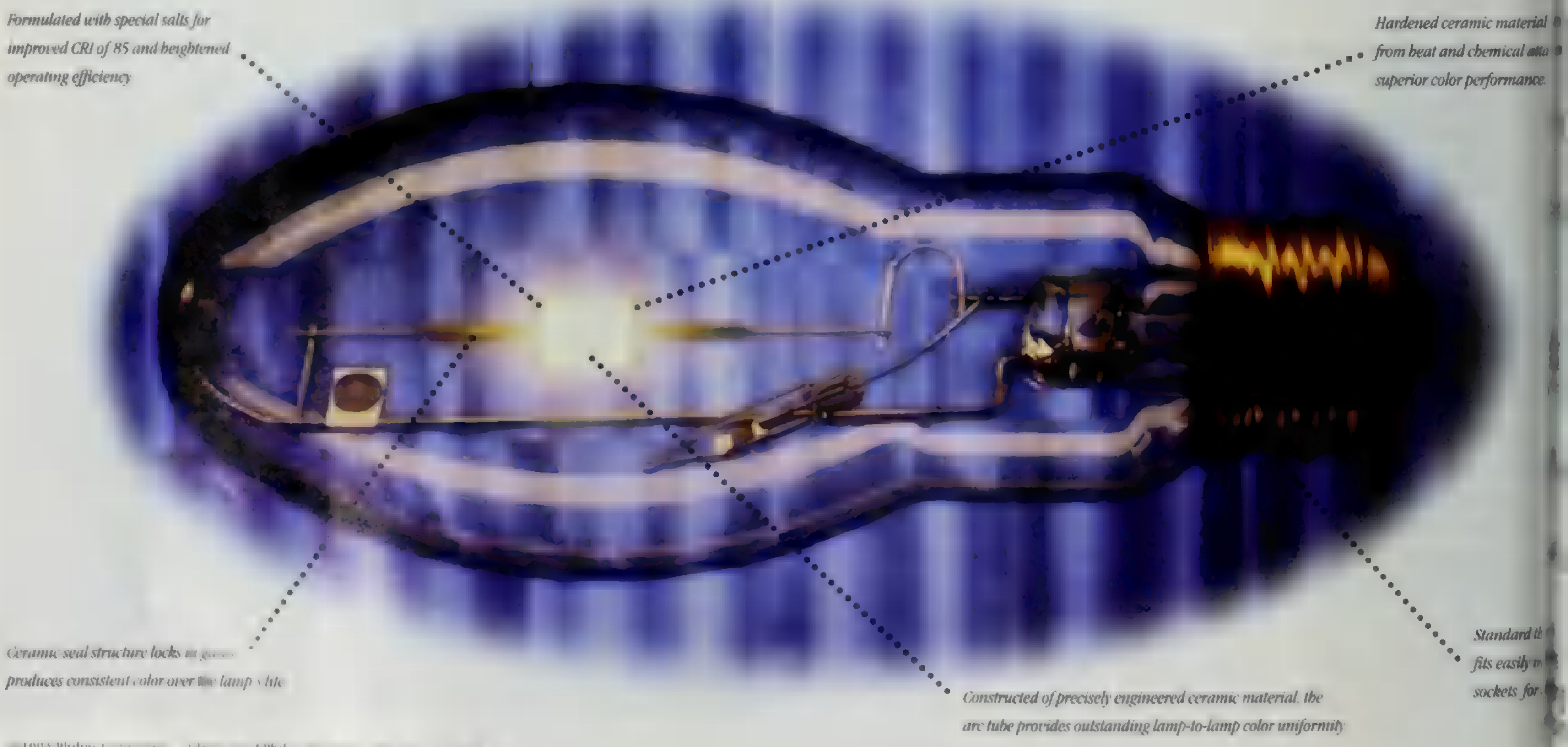




346. CFL/halogen/HID
From a wide lineup of Lightfair introductions: the 42W T/E compact-fluorescent (top) is the newest—and highest-output—Dulux bulb. It produces 3200 lumens, much more than a 150W incandescent, and plugs into a dimmable electronic ballast. New coating technology has boosted the efficiencies of Capsylite halogen lamps (top, right), popular in retail applications, recycling internal heat to generate more visible light. A new 175W metal-halide for use in open fixtures fills in the Metalarc Pro-Tech line (right); an external ignitor pulse starts the new 400W Super Metalarc, improving maintained lumens. Osram Sylvania, Danvers, Mass.

347. Combo from Catalonia
Made by Estiluz and exhibited at Lightfair, a triple-function standing lamp shows off the Spanish firm's metal-finishing expertise, with slender stems and shades in 24-carat gold plate, polished chrome, or a deep matte black. A 300W halogen set within a shallow-dish torchière gives both ambient uplighting and louver-lensed downlighting (right); an attached but functionally separate reading lamp (above) uses a high/low switched 50W halogen. Swing-arm articulates and lampholder swivels; both lamps are dimmable. ETL-listed models available. 201/641-1997. Estiluz, Inc., Little Ferry, N.J.

INSTEAD OF TINKERING WITH CURRENT M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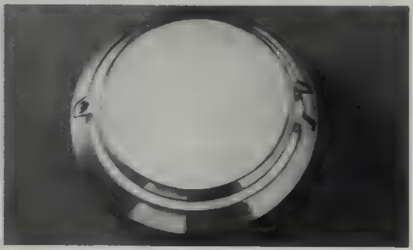
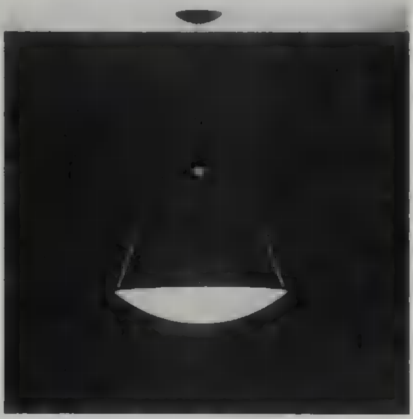
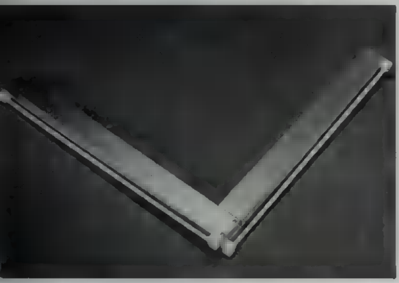
Hardened ceramic material
from heat and chemical atta
superior color performance.
Ceramic seal structure locks in gases
produces consistent color over the lamp's life
Constructed of precisely engineered ceramic material, the arc tube provides outstanding lamp-to-lamp color uniformity
Standard
fits easily
sockets for

©1994 Philips Lighting Co. – A Division of Philips [illegible] America Corp.

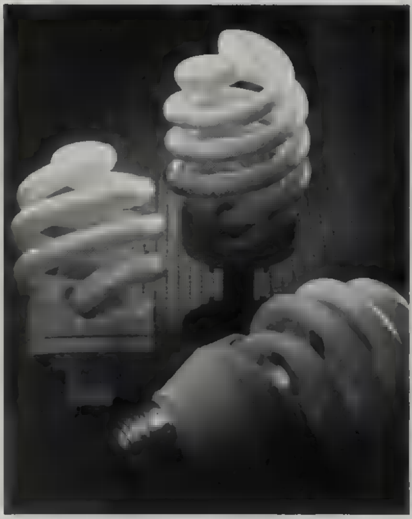
348. Italian flair
n its first Lightfair as a direct-marketing subsidiary of its Italian parent, Luceplan USA showed brand-new fixtures as well as some of ts classics. Top right is Metropoli D20, designed by Alberto Meda, Paolo Rizzatto, and Riccardo Sarfatti, which won top honors—the Compasso d'Oro—from the Italian ndustrial Design Association in 994. UL-listed for wet locations, an nterchangeable reflector system lets he porthole-like luminaire take either incandescent or CFL sources. Trama, designed by Balestrini and Longhi in 1986, is shown (right) in its counterweight version, which lets the polycarbonate-shade pendant go from 35-in. to 67-in. high. A colorful older gives a snapshot of current product, including all finish and amping options. 212/387-7961. Luceplan USA, New York City.







349. Articulating coves
The T-2 Micro Flex (left) is another of this firm's ingenious, field-curvable lights for cove and other hidden-source applications. The integrally ballasted design uses the new, very skinny but punchy T-2 lamp, and can be conformed to bends, angles, and wide radii. 908/493-2666. Norbert Belfer Lighting, Ocean, N.J.



350. Swirl CFLs and more
A truly unique shape, the Heliax (bottom left) is even shorter than the A-lamp it can directly replace, with optics that are said to make it even more efficient than comparable-wattage CFLs. Heliax is to be available in 1996. New metal halides (top left) promise better color performance and increased color-rendering and lumen output, achieved by replacing the quartz arc tube with ceramic material. GE extended its line of CFL reflectors by adding two lensed Triple Biax versions, ▪ 15W R30 and ▪ 20W R40, designed to fit in fixtures originally for incandescent sources. Also new: the Bullet Bulb, an electronically ballasted, covered 20W triple Biax (above), for applications requiring softer-toned lighting. General Electric Co., Cleveland.

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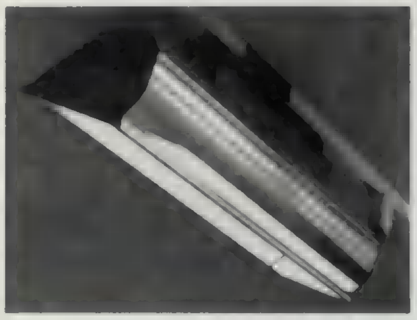
351. Enlarging the family

At Lightfair, Philips showed new products in several major lamp lines, such as EarthLight CFLs (top left), longlasting sources designed for specific residential, commercial, and industrial fixtures. New bulbs include a Decor Globe for exposed use, and flood lamps for recessed and track-lighting luminaires. New sizes in the Mastercolor white-light metal-halide lamp line, said to offer consistent color values lamp-to-lamp, include a compact 35W PAR 20 for track and down-lighting systems, and 70W and 150W double-ended lamps for large-scale interiors such as airports and shopping malls. Of environmental note, the company announced that a new capsule-injection dosing system produces "landfill-able" fluorescents that meet the EPA's stringent hazardous-waste standards. Philips Lighting, Somerset, N.J.



352. On the right track

4X luminaires put two biaxial lamps within an asymmetric reflector, said to effectively focus all lamp output on the target surface, combining the punch and control of incandescent sources with the operating efficiencies of fluorescents. Designed for surface, track, semi-recessed, and concealed installations. 203/931-4455. Elliptipar, Inc., West Haven, Conn. ■

Manufacturer Sources

For your convenience in locating lighting fixtures and other products shown in this month's feature articles, RECORD has asked the architects and lighting designers to identify their sources.

Pages 22-25

Sears 2000, Chicago
De Stefano + Partners, Architects
David A. Mintz Partners, Lighting Designers
CFL and PAR downlights: Indy Lighting. Custom interior lighting grid: Winona Lighting. Exterior metal-halide downlights: McPhilben. Dimming system: Colortran.

Pages 26-29

Bally's Plaza, Las Vegas
Freidmutter & Associates, Architect
John Levy, Lighting Designer
Show controller: Electronic Theater Controls. Neon pylons & slinky: Young Electrical Sign Company, Las Vegas Div. Underwater lights: Kim Lighting. Bollards: Staff Lighting. Steplights: McPhilben. Entry Chandeliers: Creative Light Source. Sound & Light Tube: Ken Walker, Principal-in-charge. IKW spots: LSI.

Pages 30-31

Entel Tower, Santiago, Chile
Paul Gregory, Lighting Designer
Disenadores Asociados, Consultants
Automated luminaires: Irideon, Inc. Floodlights: Quality Lighting. Search lights: Xenotech, Inc. Control system: Electronic Theater Controls (ETC). Dichroic filters: Special F/X. Testing lab: CKC Labs.

Pages 32-35

Si! Piazza Restaurant/ Lighting Wall
Haverson Architecture and Design with Primo Lighting, Lighting Design
Interior—Low-voltage adjustable accents: Reggiani (3780-10). Lamp: Q50 MR 16. Downlight: Versalume (Incandescent NXII). Lamp: GE 150 A/W. Lighting wall—Elliptipar, Inc.

Correction

The Prudential Center Retail Arcades article [May 1995 RECORD LIGHTING] states that Communication Arts did the initial custom-fixture design and Ripman Lighting developed the fixtures. In fact, Communication Arts was also responsible for initial designs, study models, design-development drawings, shop-drawing review, and fabrication supervision. The Communication Arts team included Michael Doyle and Nicholas Igel, along with Henry Beer and John Ward. Ken Lewandowski was Architect of Record for Benjamin Thompson & Associates. ■

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American Lighting Association

Green Lights

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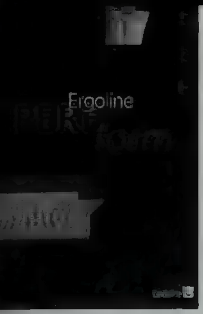
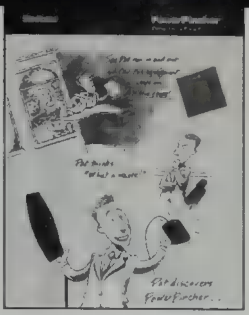
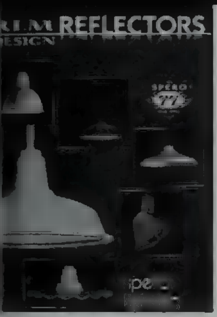


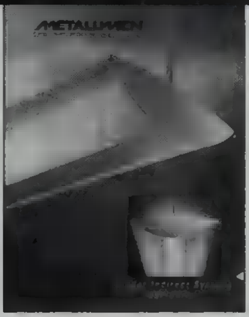
24. Semi-linear
color brochure explains how
ERFform luminaires operate at
er 83 percent efficiency, directing
ht off the ceiling for a glare-free
vironment. Modular optical units
ve a non-linear look while economi-
lly sharing a power-distributing,
truded-aluminum spine. 604/888-
11. Ledalite Architectural
roducts, Inc., Langley, B.C.



425. Workstation light control
The PowerPincher combines the features of a power strip with the rapid-payback energy savings and easy-on function of an occupancy sensor. The sleek, aimable, mouse-like sensor mounts under a shelf or on the wall, turning all connected loads on (lights, computer, and printer, for example) when needed. 800/333-9939. Steelcase, Inc., Grand Rapids, Mich.

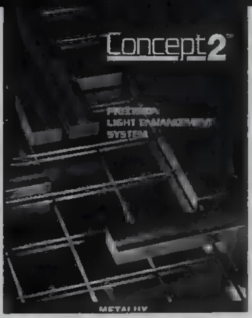


[illegible]. Industrial-look lighting
new, 20-page Spero catalog covers
erior and exterior luminaires,
luding many brackets and goose-
cks, illustrating fixtures in typical
ail and restaurant settings. Reflec-
styles are shown with all color and
unting options; dimensional and
nping data is given. Spero Electric
rp., Cleveland.



427. High-performance lights
A corporate capabilities kit contains individual data sheets on O5P Series indirect/direct and other lighting systems for office, school, and other rigorous illumination environments. Features cross-section details, photometric diagrams, ceiling plans, finish and lamping options, and suggests applications for each fixture. Metalumen Mfg. Inc., Guelph, Ont.

8. Cast-metal lighting
architectural brochure describes
v a business that began crafting
amental metal replacement parts
ame a national source of custom
l reproduction lighting. Major pro-
ts include restoring huge bronze
ndeliers in New York's Grand
ntral Terminal, inserting modern
t sources. 801/280-2400. Historical
s & Casting, West Jordan, Utah.



429. Ultra-shallow troffer
A brochure explains how Concept 2 downlights get the most out of T8 lamps and electronic ballasts, while working within 2- by 2- and 2- by 4-ceiling-grid modules. Parabolics can also be installed as a visually continuous row, with no end plate interrupting fixtures. Metalux Lighting, Americus, Ga. ■

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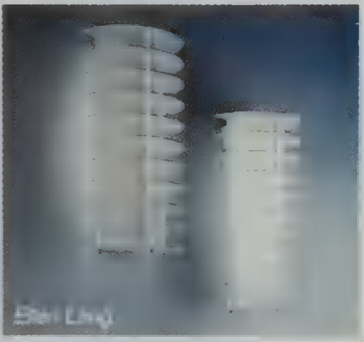
Borens

Northern Lights



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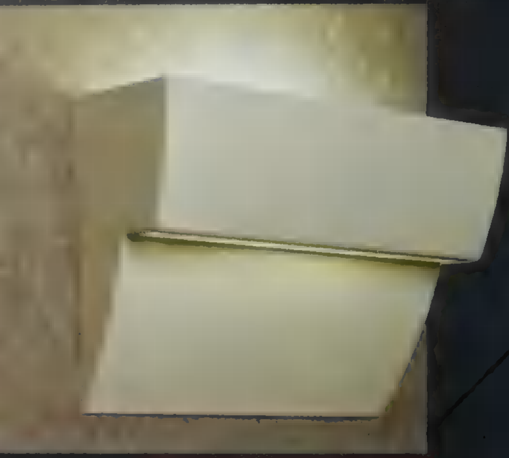

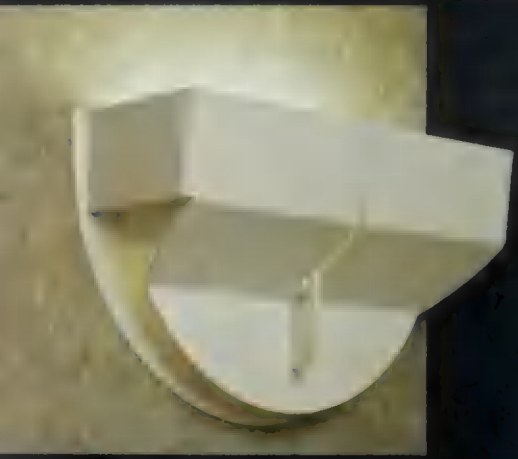

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In Grade Up Lights

This 36 page catalog covers the new, innovative 9000 Series Ingrade Lighting fixtures. See how modular design makes a difference in performance, installation, maintenance, and durability. Available in a variety of configurations, this series accepts lamps to 175W HID, 250W incandescent. Architectural and landscape illustrations include recommendations for the most common applications. Hydrel, Sylmar, California.

Hydrel

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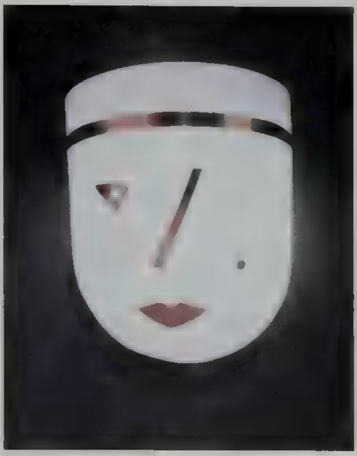
THE FLAPPER



THE FLAPPER, a new member of THE CAST, is from our fabulous BEAUX ARTS SERIES! Finally, a series of ADA compliant wall sconces with some personality! Each design is hand-crafted with solid brass or copper overlays on gloss or matte white acrylic. Fixtures feature energy efficient compact fluorescent lamps & 9 different, artistic face plate personalities are available, as well as matching pendant & surface luminaires. The Original Cast Lighting Inc., 6120 Delmar Blvd., St. Louis, MO 63112-1204 • 314-863-1895 Fax 314-863-3278.

Original Cast Lighting

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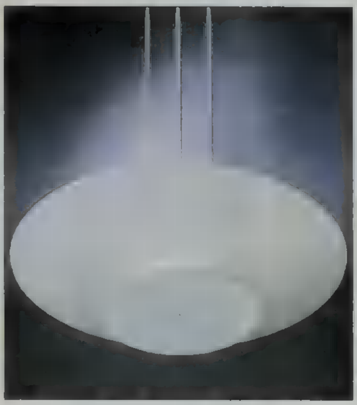
The Urania



Luxo introduces the Urania, a pendant mounted ceiling luminaire from the Borens line. Urania's fluorescent lamps are set in a spun round housing with a flat disk placed 2" below the shade to illuminate the underside of the shade.

36 Midland Avenue
Port Chester, NY 10573
Call 800-222-5896
or fax
800-648-2978

Luxo Corporation

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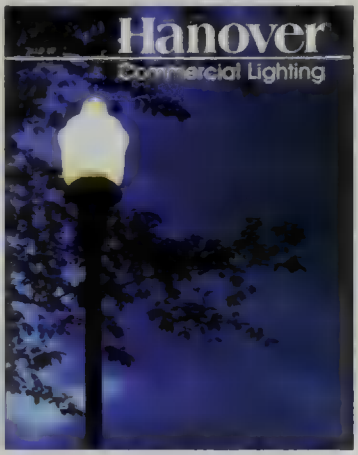
Hanover Lantern Commercial Lighting



Hanover Lantern designs & manufactures high quality heavy duty cast titanium/aluminum commercial grade decorative lighting fixtures, poles & accessories. A selection of design styles, light source options, light distribution systems, mounting options, computer generated photometric data plus a custom design service are available to the architect or engineer. 470 High St., Hanover PA 173331. Phone (717) 632-6464, fax (717) 632-5039

Hanover Lantern

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Avoid Annoying Glare 10 to 1 MH Spacing

Hydrel's new 9600 Series Recessed Wall-Step Lights with improved beam patterns and unique internal glare control achieves remarkable 10 to 1 mounting height to spacing ratio. Patented sealing technology and modular construction provide air cooling for reduced size and simple installation/maintenance. Up to 100 watts HID.

Hydrel

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The AR500™ Exterior Luminaire by IRIDEON

The IRIDEON™ AR500 color changing luminaire, used in the award winning Entel tower installation, represents the state-of-the-art in specialized outdoor floodlighting. The luminaire features a patented, computer-controlled, automated, dichroic color-changing assembly and optional diffuser or douser mechanism. The luminaire is designed and certified for use in wet locations. For further information, contact Irideon, Inc., 201 Regal Row, Dallas, TX 75247. Phone (214) 819-3208. Fax (214) 630-5867.

Irideon

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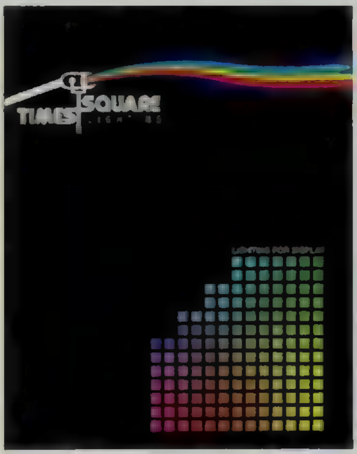
Lighting Fixtures



Times Square Lighting's condensed catalog contains our complete line of line and low voltage specification grade lighting fixtures. Numerous mounting options as well as accessories for our fixtures are available.

Times Square Lighting
Rte. 9W
Stony Point, NY 10980
914-947-3034

Times Square Lighting

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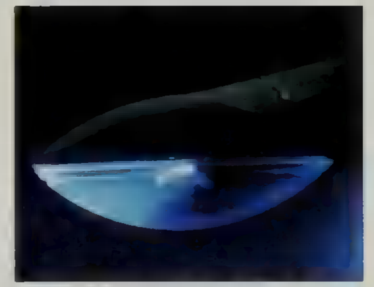
Exterior/Interior Luminaire



Scoop, an exterior/interior luminaire of distinction is designed for surface mount, recessed or post mounted applications. Special features include an asymmetric reflector with a computer designed optical assembly for glare control. Light sources: Halogen and HID. UL Listed. IBEW made.

Reggiani

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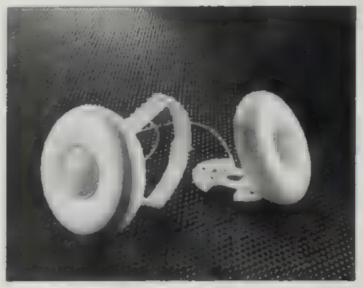
Pass & Seymour/Legrand® [illegible] Infrared Occupancy Sensor: Energy Efficiency and Easy Installation



Pass & Seymour/Legrand® introduces its new Passive Infrared ("PIR") Occupancy Sensor - designated the OSC1001 This new device offers a 40' nominal viewing range along with optimum accuracy & control (no false triggering due to air currents or movements of objects other than people) The result is the energy efficiency demanded by today's owners developers & building operators Installers will note the features that make installation virtually hassle-free Those include 5 different mounting methods with no special adapters required a hinged mounting plate for easy angular adjustments the ability to use up to 7 [illegible] with one switching module The OSC1001 is UL listed & CSA certified For more information write Pass & Seymour/Legrand P.O. Box 4822 Syracuse NY 13221 or call 800-223-4185

Pass & Seymour/Legrand

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Sign Lights

PRIMELITE MANUFACTURING offers **SIGN** lights of high quality & styling as well as practicality Our **SIGN** lights are available in HID or Incandescent with a choice of heads & arm lengths **PRIMELITE** offers an entire line of decorative outdoor fixtures, poles, postlights, wall brackets & indoor fixtures factory shades, cased glass, prismatic glassware & prismatic acrylic, spheres & wall sconces We provide a wide selection of lights sources choose incandescent, mercury vapor high pressure sodium, metal halide PL or halogen All of the above lights can be constructed to your own unique design Please call us for a complete catalogue PRIMELITE MANUFACTURING 407 South Main St Freeport, NY 11520 Phone (516) 868-4411 Fax (516) [illegible]

PRIMELITE MANUFACTURING

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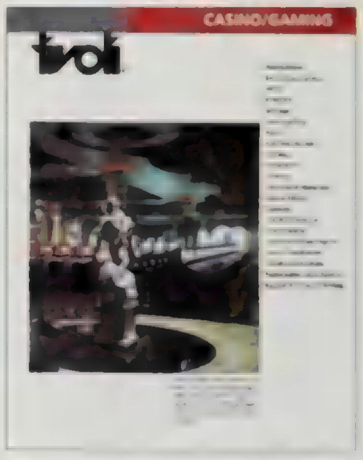
Custom Lighting



Tivoli Industries, designer and manufacturer of a wide range of specialty and custom lighting products utilizing low and line voltage, including: Cove, decorative/performance illuminated ceilings, linear task/accent, tube aisle/step, topiary and landscape lighting products. Exclusively provides Targetti's high performance systems, including low voltage track, [illegible] conductor and truss support systems 800-854-[illegible] Fax 714-957-1501.

Tivoli Industries, Inc.

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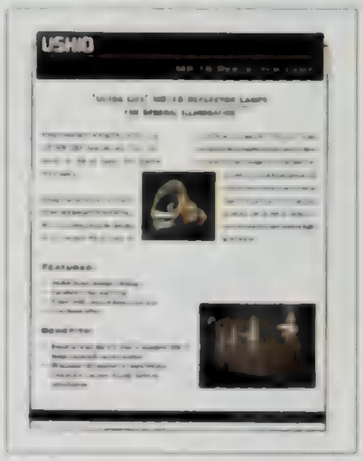
"Ultra Life" Series of MR16's



USHIO INTRODUCES LONG LIFE 12V-50W/EXN AND 12V-75W/EYC LAMPS FROM THE NEW "ULTRA LIFE" SERIES OF MR16'S FOR GENERAL ILLUMINATION

Owing to advancements in filament design and halogen fill technology this series offers twice the lifetime of standard MR16's At 10,000 hours average "Ultra Life" lamps provide obvious benefits in applications where frequency of lamp changes are a consideration joining Ushio's already extensive line of specialty MR16's for interior and exterior lighting Phone 800/218-7446

Ushio America, Inc.

Circle 96 on Inquiry card

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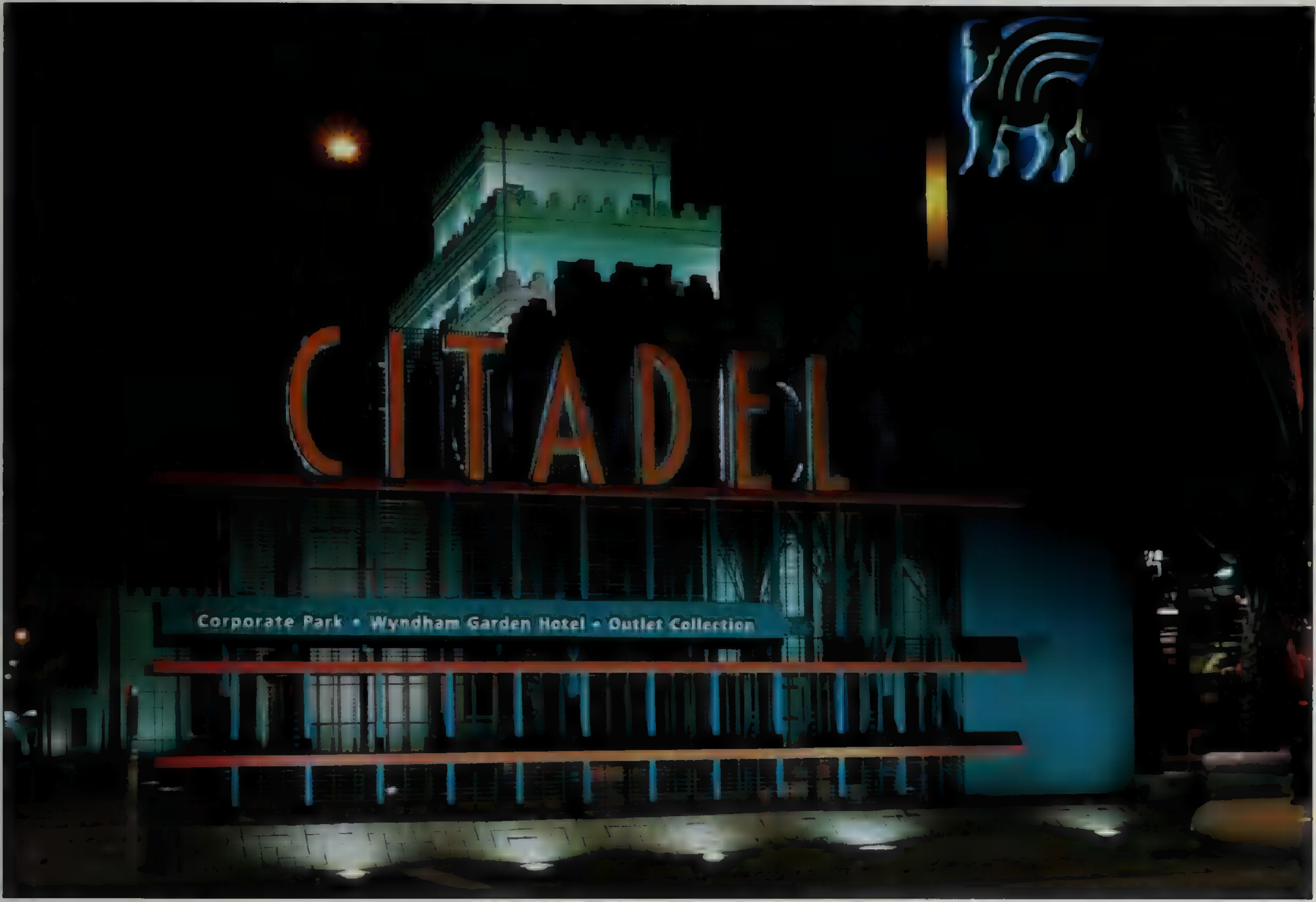
owner: Trammel Crow *architects:* Nadel Partnership in conjunction with Sussman Prejza *lighting design:* Grenald Associates



9000 NIGHTWASH

Wide, even light finds new shapes in the night time landscape

Hydrel's 9000 Series ingrade up lights illuminate the walls at the new Citadel retail and office complex in Los Angeles. These new hi-tech in-grade fixtures were chosen especially for their high performance and low installation cost.

Chip Israel of Grenald talks about the project:

"The lighting on the front had to unify the whole project, as well as provide a soft inviting feeling."

" The solution included 175 watt metal halide 9000 Series from Hydrel, set back six feet from 30 to 40 foot walls as a wash."

"We ended up further back and with a softer approach... we wanted the building to have a friendly feel, not to eerie."

"The lighting was also aimed up and outward from the entrance along the walls to accentuate architectural detail and shadows and to prevent the lighting from becoming to flat."

"These lights have the benefits of being concealed in-grade fixtures which reduce both aesthetic objections and installation costs, as well as new high performance E-17 lamps."

"We were fortunate to be able to work very well with some manufacturers such as Hydrel and Western Lighting Industries...They were able to supply us with some great and efficient lighting at a price that enabled the job to get done in the way we wanted."

Hydrel's 9000 Series in grade fixtures provide wide uniform performance for wall wash and sign lighting applications.

HYDREL 12881 BRADLEY AVENUE • SYLMAR • CALIFORNIA 91342 • TEL 818/362-9465

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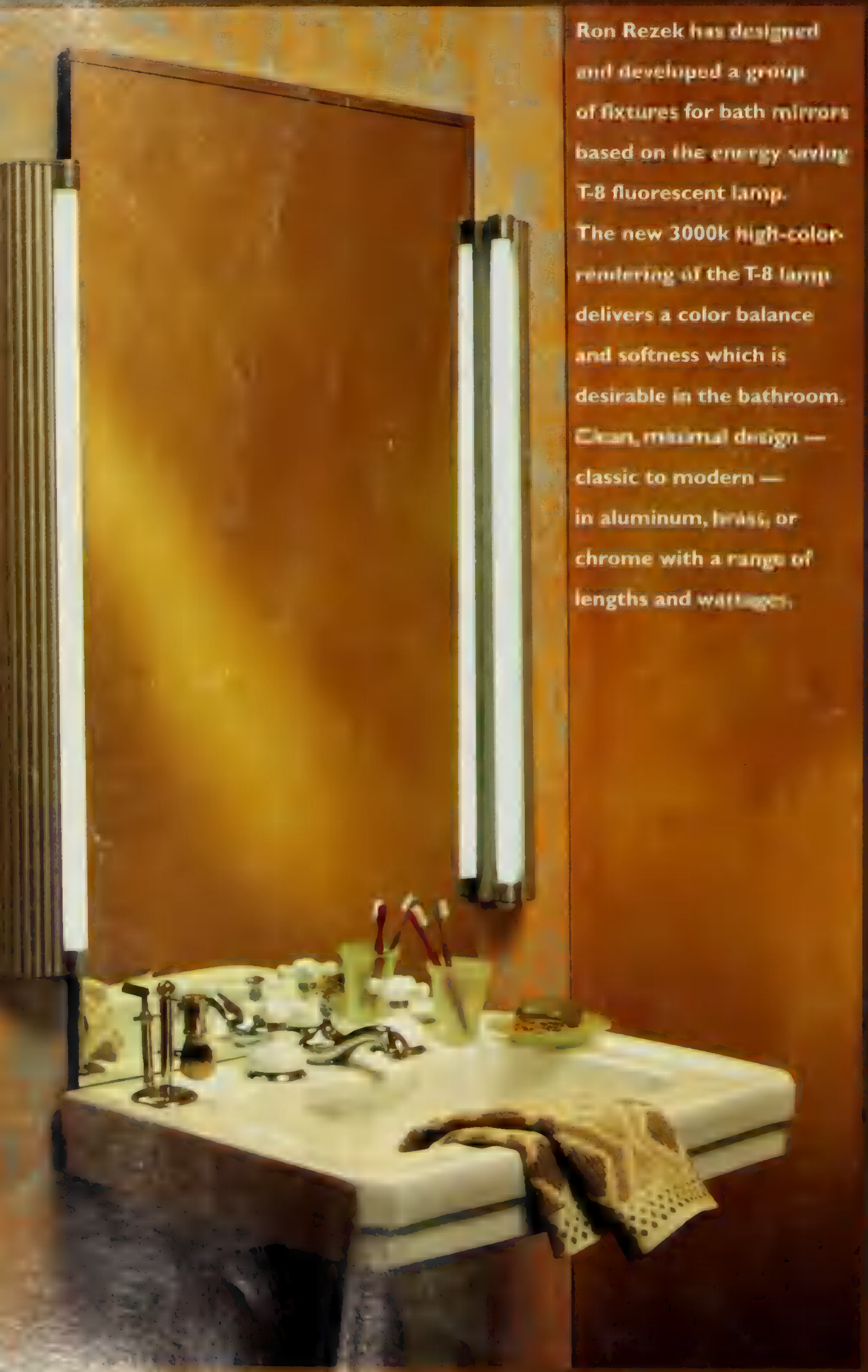
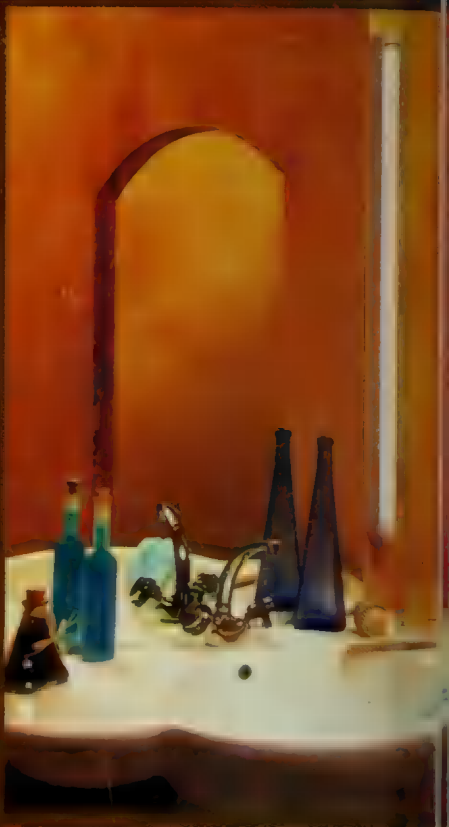
Ron Rezek makes you look great



Ron Rezek has designed and developed a group of fixtures for bath mirrors based on the energy saving T-8 fluorescent lamp. The new 3000k high-color-rendering of the T-8 lamp delivers a color balance and softness which is desirable in the bathroom. Clean, minimal design — classic to modern — in aluminum, brass, or chrome with a range of lengths and wattages.



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